McCARTNEY LIBRARY
GENEVA COLLEGE

OCTOBER 19, 1946

Railway Age

Founded in 1856

Smoothness

railroad men of the country have left no stone urned in seeking new refinements which will rove both the passenger and freight car service omorrow.

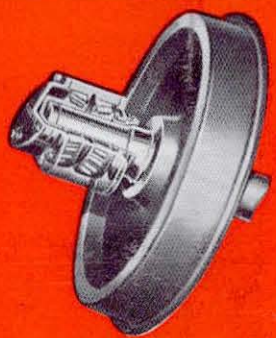
ctor of great importance which has made pos- smoothness in train operation is the Timken ered Roller Bearing.

s advanced product means trains can start with zing new quietness and smoothness — with- jar, jerk or jolt and maintain faster and more able schedules. Hot boxes are wiped out — maintenance and operating costs greatly reduced — availability greatly increased.

Smoothness and new comforts are a demand of the day. Timken Roller Bearings answer this need.

Timken Bearing research, Timken Bearing advanced engineering and a sound practical knowledge of requirements are at the disposal of railroad executives. Remember to see that the trademark "TIMKEN" is on every bearing you buy. The Timken Roller Bearing Company, Canton 6, Ohio.

"All There Is In Bearings"



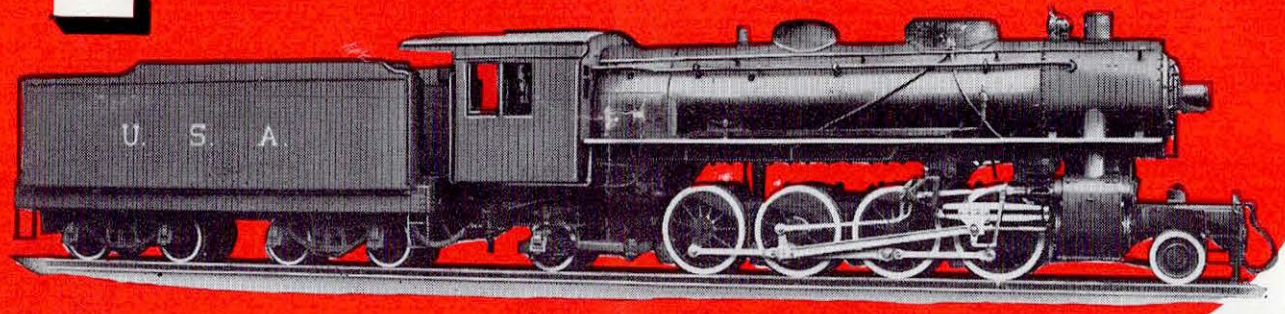
TIMKEN

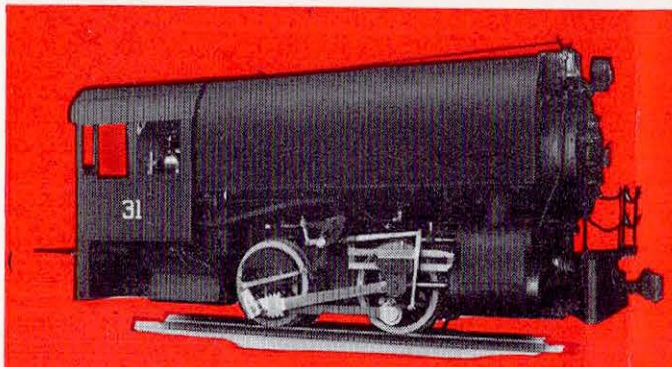
TRADE-MARK REG. U. S. PAT. OFF.

RAILWAY ROLLER BEARINGS

KEN BEARINGS, TIMKEN ALLOY STEELS AND TUBING AND TIMKEN REMOVABLE ROCK BITS

PORTER Steam Locomotives

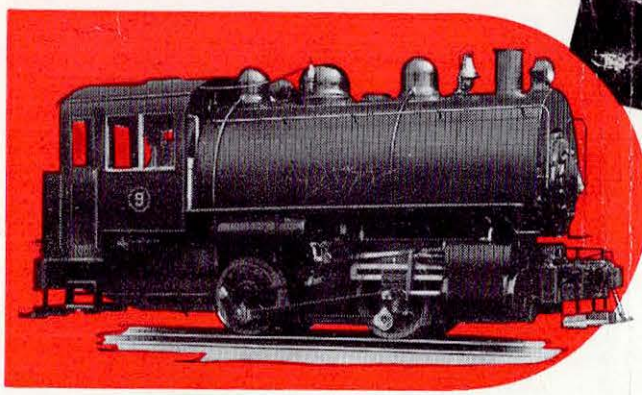




Lower Operating Costs

Less Maintenance

Greater Availability



Here are some of the features that give PORTER Locomotives their EXTRA STAMINA

1. Extra-heavy frames, flame-cut from solid, heavy-section, Universal mill plate. Annealed and heat-treated after cutting.
2. Axles, crank pins, guides, rods, and other strain-bearing parts solid-forged from best quality open hearth steel.
3. Extra large bearing surfaces on all moving parts.
4. Accurate machining of all wearing and fitted surfaces.
5. Case-hardened pins and bushings at all vital parts.

PORTER "Better Built" Equipment
Established 1866

LOCOMOTIVE DIVISION: Diesel, Diesel-Electric, Steam and Fireless Steam Locomotives

FORT PITT SPRING DIVISION: Coil and Elliptic Springs for Locomotives, Freight and Passenger Cars.

PROCESS EQUIPMENT DIVISION: Complete Line of Chemical, Food, and Petroleum Refinery Equipment.

QUIMBY PUMP DIVISION: Screw, Rotex, and Centrifugal Pumps.

HINDERLITER TOOL DIVISION: Oil Well Drilling Equipment.

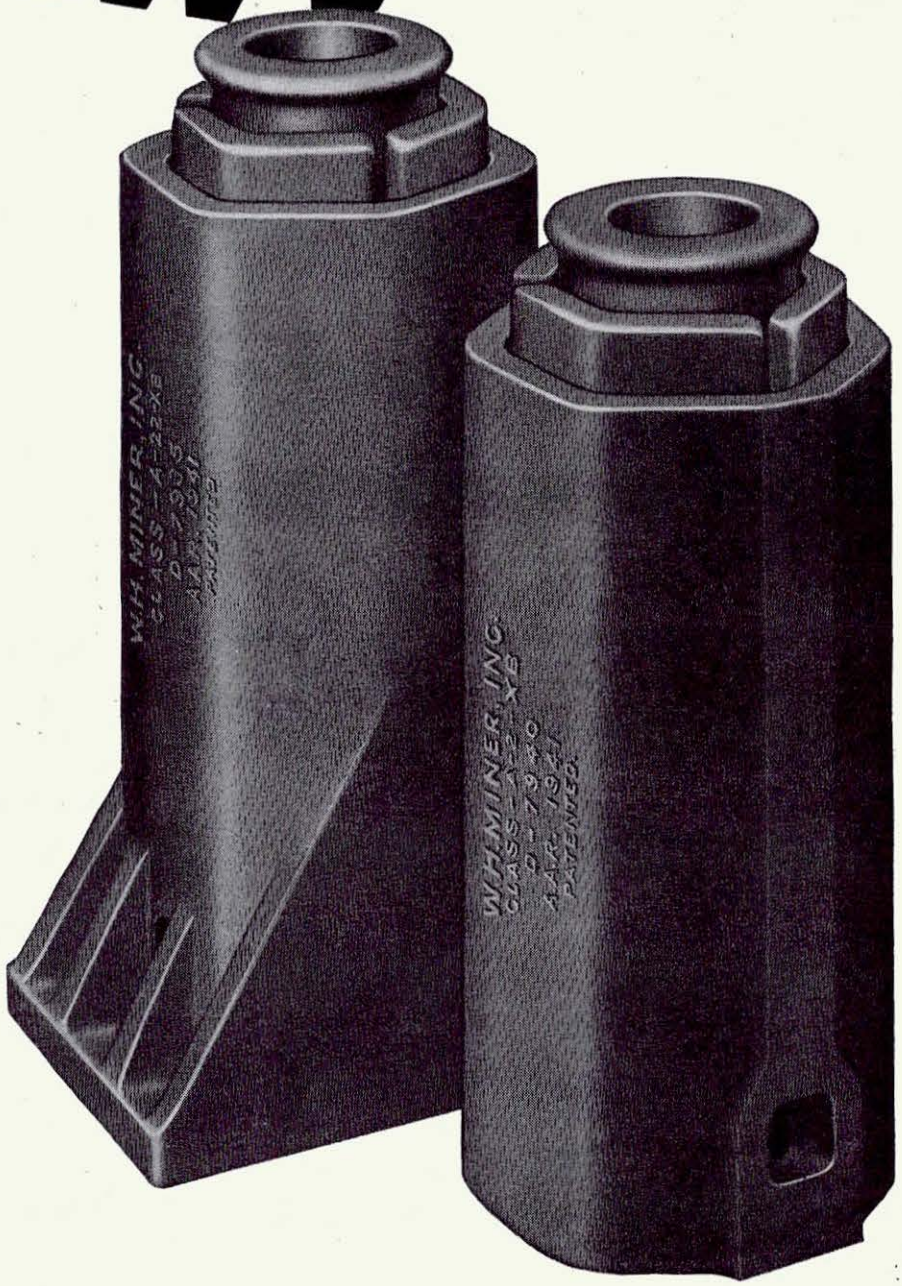
H. K. PORTER COMPANY, Inc.

PITTSBURGH, PA. • BLAIRSVILLE, PA.

NEWARK, N.J. • NEW BRUNSWICK, N.J. • MT. VERNON, ILL.

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 121, No. 16.

QUALITY



MINER

FRICTION DRAFT GEARS

POSITIVE IN ACTION — **STURDY** — **ABSOLUTELY RELIABLE**

W. H. MINER, INC. CHICAGO

Because it so ideally combines lightweight ... strength ... endurance ... easy fabrication ... and reasonable cost

"COR-TEN Equipment" HAS COME TO MEAN

WHY do leading railroads, year after year, keep on adding more and more U·S·S COR-TEN freight cars? Why are there more than 67,000 of these cars in service, now building or on order?

The reason is clear. U·S·S COR-TEN has equalled or *surpassed* every claim made for it since it was first put into service by the railroads eleven years ago.

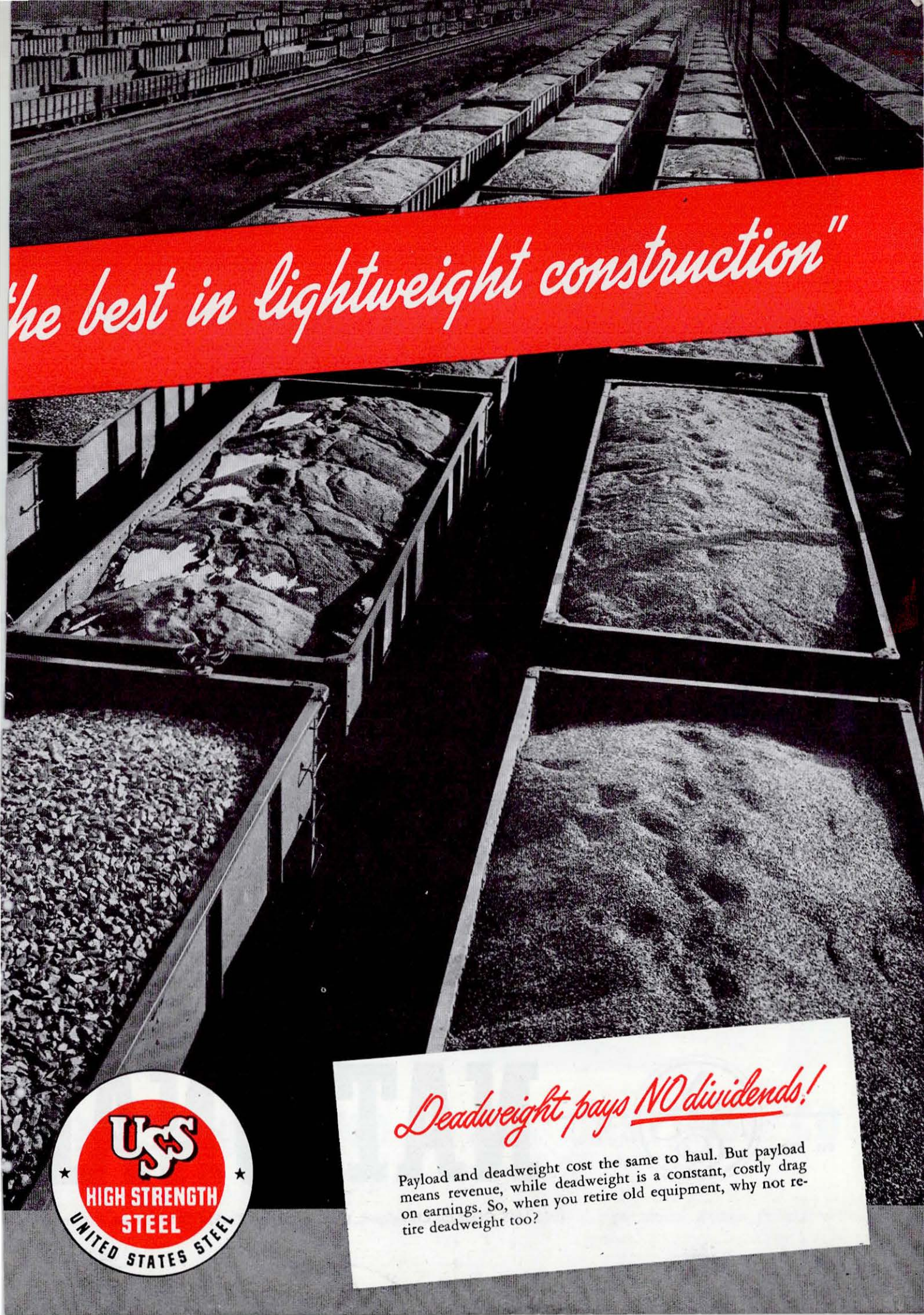
U·S·S COR-TEN equipment has carried more payload. It has cost less to operate. It has stood up in high-speed, heavily loaded service with minimum maintenance. And it has done this on all types of freight equipment, operating under all sorts of conditions. No lightweight metal or other high-strength, low alloy steel can even approach U·S·S COR-TEN's record for the variety and number of freight car applications . . . for length of service . . . for successful and economical performance.

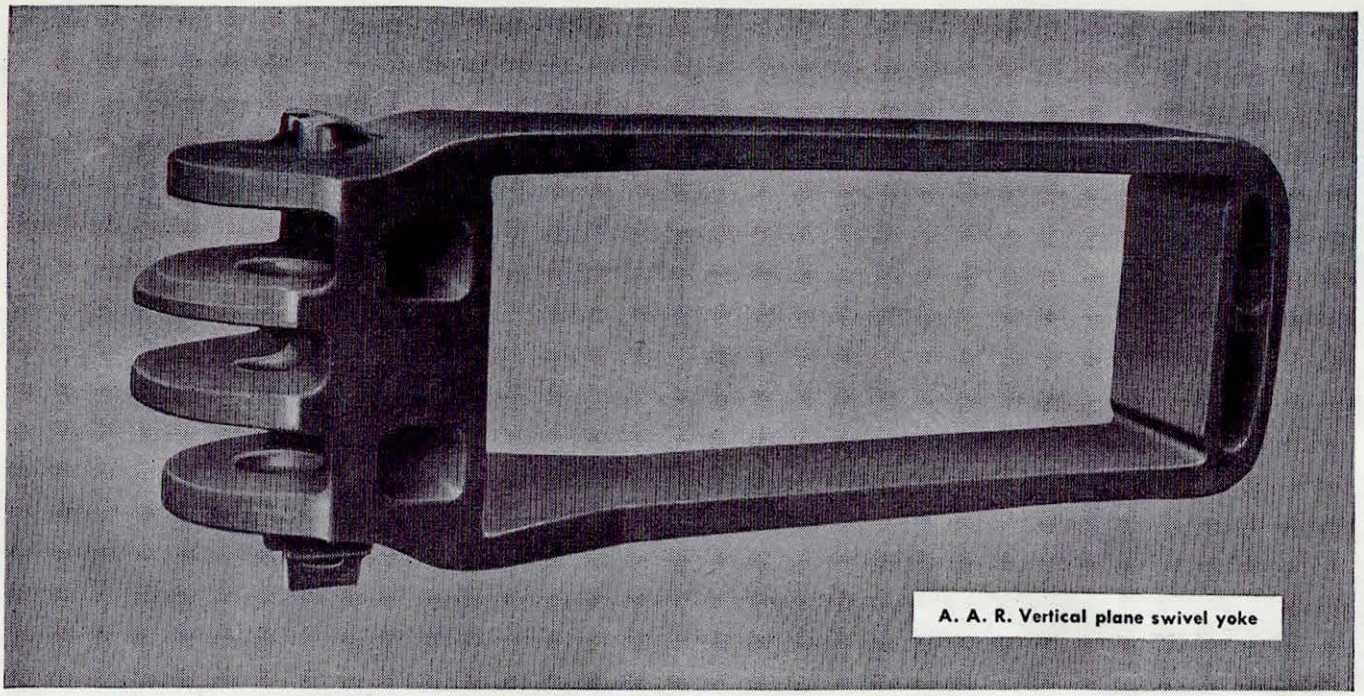
As you plan to replace your obsolescent, worn-out and patched-up freight equipment, plan to take advantage of the proved economies, the greater efficiency that lightweight construction with U·S·S COR-TEN offers. Our engineers can place at your disposal an unequalled experience in the application of high strength steels to freight car construction that cannot fail to be helpful. We welcome the opportunity to work with you.

LISTEN TO . . . *The Theatre Guild on the Air*, presented every Sunday evening by United States Steel. American Broadcasting Company, coast-to-coast network. Consult your newspaper for time and station.

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
NATIONAL TUBE COMPANY, *Pittsburgh*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL


the best in lightweight construction"
Deadweight pays NO dividends!
Payload and deadweight cost the same to haul. But payload means revenue, while deadweight is a constant, costly drag on earnings. So, when you retire old equipment, why not retire deadweight too?
USS
HIGH STRENGTH STEEL
UNITED STATES STEEL



Precision Equipment ...not just Castings!

National Yokes give long-time service in railroad cars because they're *precision equipment, not just castings.*

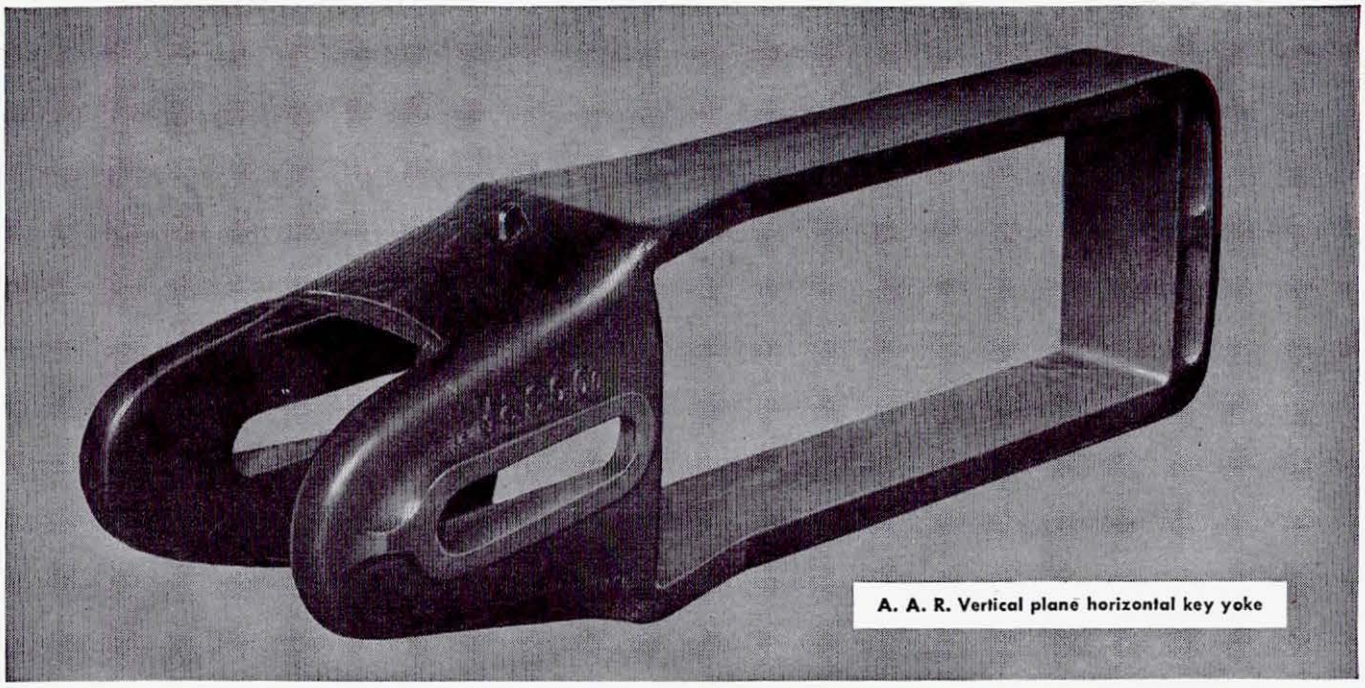
They're engineered to work properly in the coupler and draft-gear assembly. They're made of quality material to resist shock, strain and stress. They're cast to close tolerances and carefully inspected with the many gages shown.

That's why you're ahead when you buy National Yokes.

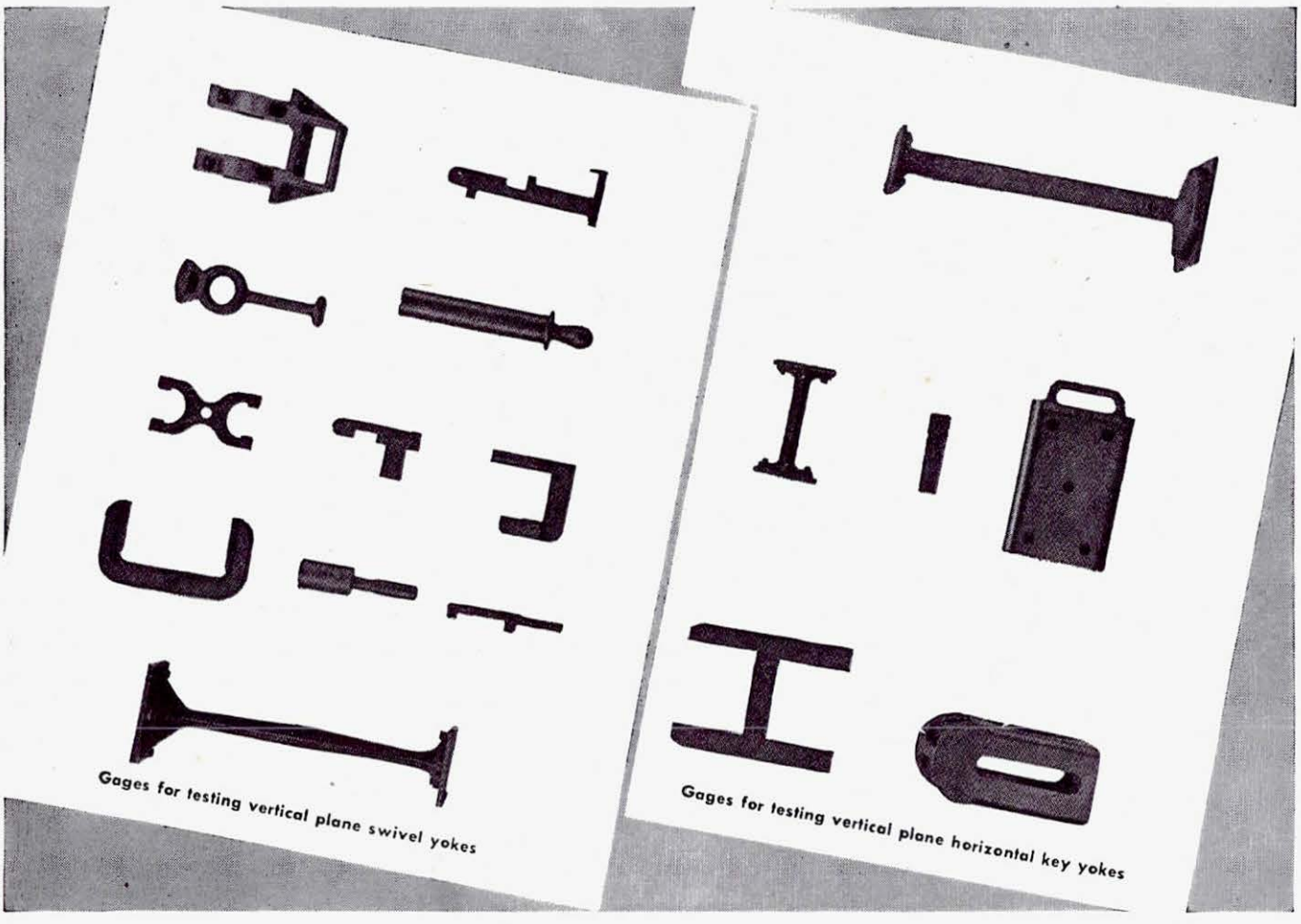
Est. 1868

NATIONAL

SALES OFFICES: Cleveland, Chicago, New York, Philadelphia, Richmond,



A. A. R. Vertical plane horizontal key yoke



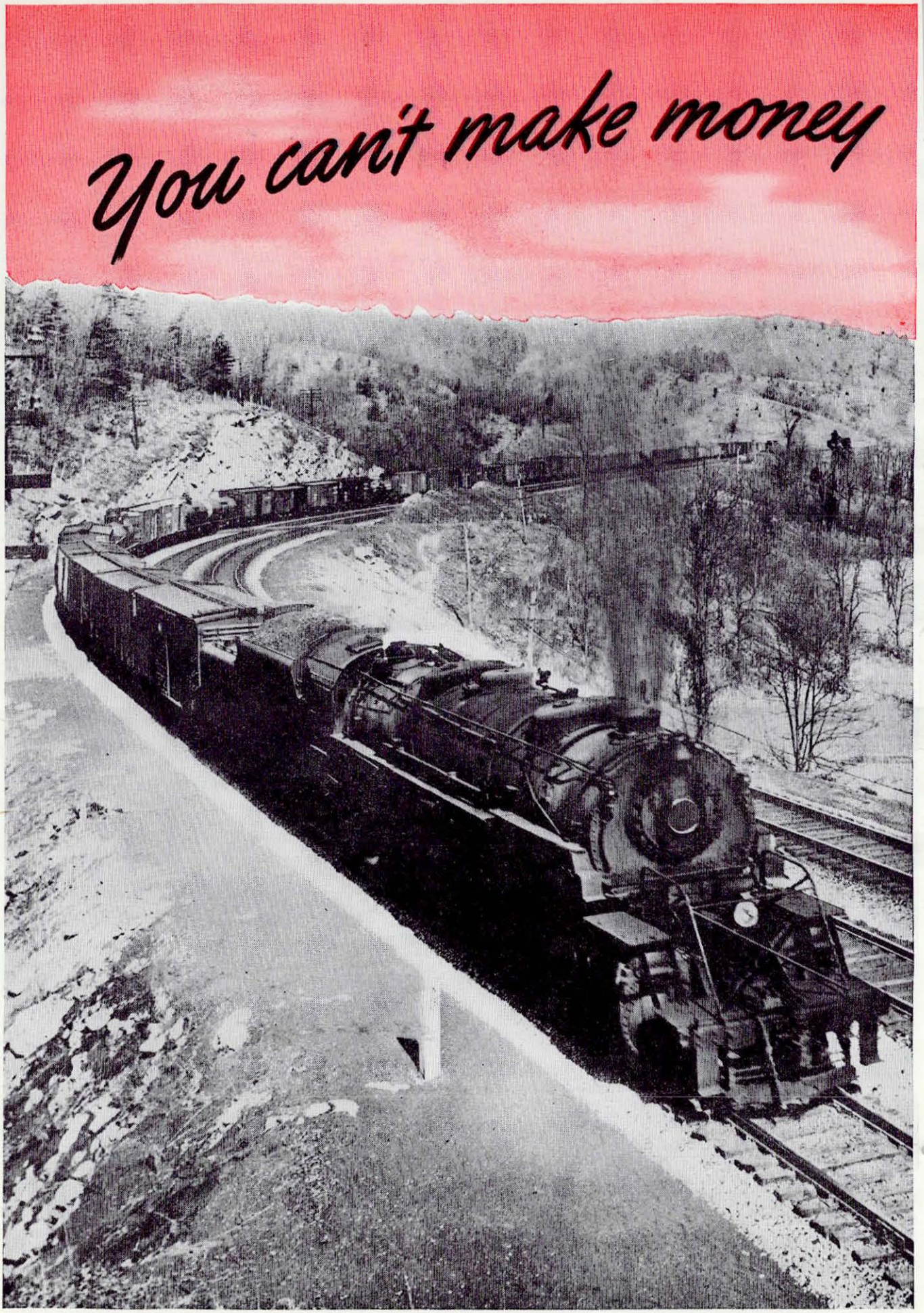
Gages for testing vertical plane swivel yokes

Gages for testing vertical plane horizontal key yokes

MALLEABLE AND STEEL CASTINGS CO.

Cleveland, Ohio

San Francisco, St. Louis • *WORKS:* Cleveland, Chicago, Indianapolis, Melrose Park, Illinois, Sharon, Pennsylvania


You can't make money

Hauling Deadweight

—YET HALF OF YOUR POWER MAY BE WASTED ON IT!

You can't afford to waste power these days. The margin between operating costs and incoming revenue simply will not permit it.

Yet—half of the total weight you haul in an average freight train is deadweight —*for which you do not get paid!*

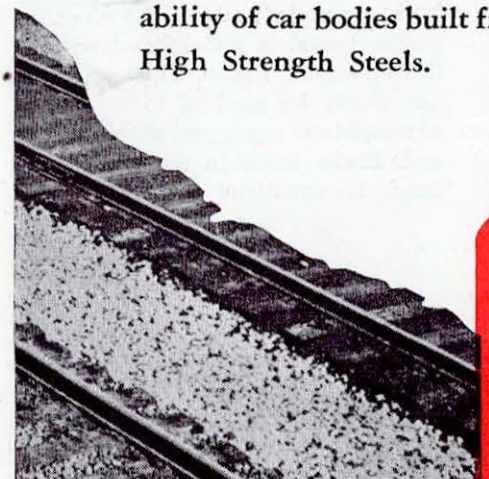
Here's what to do about it! Convert a substantial percentage of your freight car deadweight into payload by replacing obsolete, cumbersome cars with new ones made of Republic High Strength Steels. Yes, *you can cut car body weight 25%—save power—cut operating costs.*

That's one way in which these weight-saving steels will more than pay their way. Another is in the increased durability of car bodies built from Republic High Strength Steels.

Because of their minimum yield strength of 50,000 pounds per square inch, combined with more than twice the corrosion-resistance of ordinary steels in railroad service these steels keep cars on the road longer—and cut repair bills.

To enable freight car designers and builders to get greatest capacity, best proportion of payload to deadweight and most life for your dollar invested, Republic offers you not one, but THREE *different* High Strength Steels—Republic ALDECOR, Republic COR-TEN and Republic DOUBLE STRENGTH—in plates, bars, sheets and strip. And Republic metallurgists are ready to help you select the steel best suited to each need. Write us.

REPUBLIC STEEL CORPORATION
GENERAL OFFICES: CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.



Republic

HIGH STRENGTH STEELS

ALDECOR • COR-TEN • DOUBLE STRENGTH

Other Republic Products include Carbon, Alloy and Stainless Steels—Sheets—Plates—Pipe—Bolts, Nuts and Rivets—Boiler Tubes

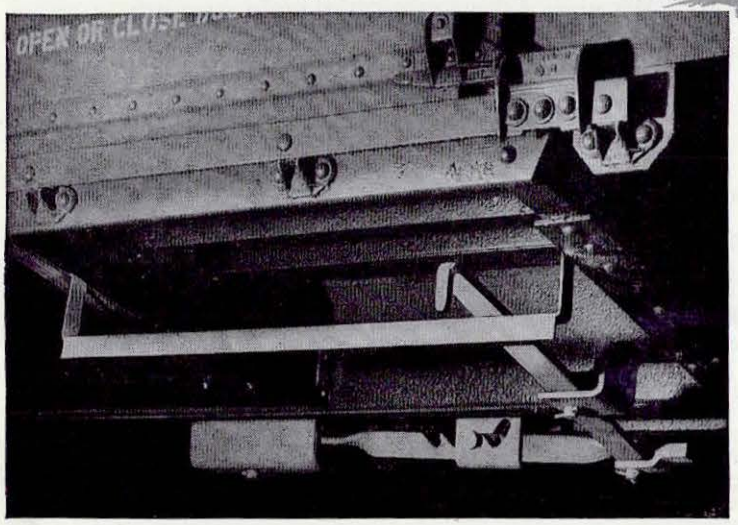
AMWELD SLACK ADJUSTERS

2 TYPES

SAFE

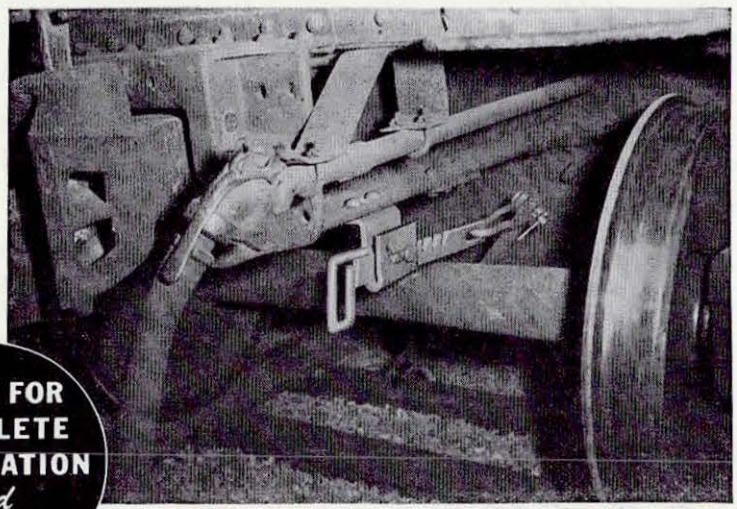
SIMPLE

CONVENIENT



TYPE "B-1" PATENTED

This slack adjuster assures safe and positive brake operation. Piston travel is maintained within the specified limits by a simple pull on a convenient handle located on side of car. The location of this handle eliminates dangerous task of getting under or between cars. Simple to apply and to operate, this adjuster provides positive take-up and slack-off. Can be applied to box, gondola, certain types of flat cars and hopper cars where sufficient clearance is available between hoppers.



TYPE "T" PATENTED

Safe and positive brake operation is assured when cars are equipped with this Type "T" Slack Adjuster. With a simple pull on the handle, piston travel is maintained within the specified limits. This adjuster can easily be applied to any type of freight car equipped with bottom rod. Brake force in car body and truck is equalized and balanced.

WRITE FOR COMPLETE INFORMATION *and* PRICES

RAILWAY EQUIPMENT DIVISION

THE AMERICAN WELDING AND MANUFACTURING CO.

2020 GRISWOLD STREET • WARREN, OHIO

FIRST THE "1500"...
NOW THE NEW "2000"

8 REASONS WHY THE "2000" CAN INCREASE YOUR EARNING POWER

1. Style—to attract new revenue
2. Speed—to improve schedules
3. Unequalled power per pound of weight
4. Shortest total wheelbase
5. Availability plus
6. Flexibility—to permit maximum utilization
7. Rock-bottom operating cost
8. Minimum maintenance

Alco GE

AMERICAN LOCOMOTIVE and GENERAL ELECTRIC

MORE PASSENGER-MILES

IN LESS TIME AT LESS COST

This great new 2000-hp Alco G.E. diesel-electric is the answer to your demand for motive power that packs real earning power.

Its flashing speed and clean-cut, streamlined appearance will help you attract new revenue. With the "2000", you can improve service to passengers, and with this great locomotive you can improve the merchandising of this service.

Its low operating cost and high availability will enable you to turn more of your passenger revenue into net operating profit.

More Passenger-miles *in Less Time, at Less Cost*

The "2000" is the lightest of all comparable rated diesel-electric cab units and one of the shortest—it weighs but 304,500 pounds fully loaded, and measures only 65 feet, 8 inches between couplers. This higher ratio of horsepower to weight and length adds extra payload to your trains. It also permits the highest utilization of the locomotive's availability by accurate "tailoring" of locomotive capacity to load requirements.

More Passenger-miles ***In Less Time,*** *at Less Cost*

With optional gearing to meet your operating requirements, this great streamliner will highball at speeds up to 120 mph, clip running time from schedules. Best of all, the electric drive delivers this speed so smoothly that life of rail, roadbed, and motive-power equipment is prolonged.

More Passenger-miles in Less Time, ***At Less Cost***

Exceptional economy of operation and high availability are built into the "2000". The use of experienced-proved feature in combination with new war-tested developments results in low cost of fuel, lubrication, and maintenance. The "2000" is built to operate 1,000,000 miles before major overhaul. The completely practical design minimizes the time required for routine inspection and servicing, and makes possible high day-to-day availability. The sturdy construction is your assurance that these operating and maintenance economies will continue year after year—long after the locomotive has paid for itself.

THE NEW ALCO-G.E. "2000"

Built TO INCREASE RAILROAD EARNING POWER

Alco GE

AMERICAN LOCOMOTIVE

150 pounds per horsepower—lightest of all 2000-hp diesel-electrics, the Alco-G.E. "2000" hauls less dead load, more payload.

Room to work—plenty of aisle space and overhead room make inspection and servicing easy and fast.

49-ft., 8-in. total wheelbase—With room to spare, this compact, "2000" will fit station platforms, turntables, and shop facilities better than any previous model. The resulting faster turn-arounds mean more time in revenue service.

and GENERAL ELECTRIC

113-175-9580

20 Money-Making Features

You'll Want to Ask Your Alco-or G-E Representative About Them

1. Single power plant delivers 2000 hp for traction
2. V-type, 16-cylinder, 4-cycle engine design
3. Constant-pressure turbo-supercharger
4. Service-proved traction motors
5. Specially designed, high-speed generator with amplidyne excitation
6. Gear-driven auxiliary generators and amplidyne exciter
7. Electro-hydraulic governing system with precise load control
8. Compact, modern control devices
9. "Clean-cut" operator's cab with unequalled visibility—streamlined enclosures, controls located for ease of operation and maintenance
10. Large-scale instruments, illuminated with ultra-violet "black" light
11. High-capacity, fully automatic engine cooling system will operate satisfactorily at 110 degrees F, ambient, at 8000 feet altitude
12. Single radiator fan driven through eddy-current clutch; automatic control, fully modulated speed
13. 100% filtered air for engine room
14. Motor-driven radial blowers for traction motors
15. Compact, high-capacity train heating boiler
16. High-capacity air compressor
17. "Packaged" units of equipment permit quick "change-out", save time
18. Designed for ready installation of smooth, powerful dynamic braking
19. All-welded, high-strength steel chassis—completely insulated operator's cab
20. Smooth riding, sturdy, 3-axle, cast steel trucks—40-in. wheels

Alco

GE

Built TO INCREASE RAILROAD EARNING POWER

AMERICAN LOCOMOTIVE and GENERAL ELECTRIC

ACCEPTED

for new Streamliners

COAST TO COAST

NP

AUTOMATIC

END DOOR OPERATORS

A wonderful convenience for travelers is about to appear on great new streamliners. No longer will end doors be hard to open. No longer will beautiful cars be sectioned off into confining compartments—isolating the occupants.

End doors will open automatically, with hardly more than a light fingertouch. Luxurious diners and lounges will be readily accessible... like walking from room to room in your own home. It will be a great stride forward in convenience, the day these trains roll from the shops. A needed touch of modernism!

From coast to coast, N.P. Automatic End Door Operators shortly will be in service.

NATIONAL PNEUMATIC COMPANY

GRAYBAR BLDG., NEW YORK • McCORMICK BLDG., CHICAGO

400,000,000 TIMES EVERY DAY N.P EQUIPMENT OPENS AND CLOSES DOORS ON MASS TRANSPORTATION VEHICLES

YOU GET A LOT MORE THAN THE BEST EQUIPMENT

When You Buy JACKSON Tampers and POWER PLANTS

A four-tool outfit, 4-face-tamping and the multiple jack method of raising — an excellent setup your JACKSON Field Man can be helpful in organizing.

An 8-face operation, even in tombstones like these, is duck soup for JACKSON Tampers properly used — Ask your JACKSON Field Man.

Loosening cemented ballast with speed that crowds the shovelers, is just one of many advantageous uses your JACKSON man is ready to demonstrate.

As near to you as your telephone, and available on call, is a JACKSON District Field Engineer — thoroughly schooled by years of experience in track maintenance methods and the ways in which JACKSON equipment can be used to far outstrip any other tie-tamping equipment in quantity and quality of track maintained.

It's his job to aid and instruct the men who will use it — to confer or consult on new or unfamiliar work — to see that the maintenance of the equipment is thoroughly understood. In short his sole purpose is to see that you get the utmost returns on your investment. And the results have been so uniformly good that with more than 4 out of 5 of America's leading railroads, JACKSON Tampers and Portable Power Plants are standard equipment. Complete information on JACKSON Tamping Equipment and methods will be gladly sent to you on request.

ELECTRIC TAMPER & EQUIPMENT CO., Ludington, Michigan

WINDOWS OF CONSTANT, BRILLIANT VISIBILITY

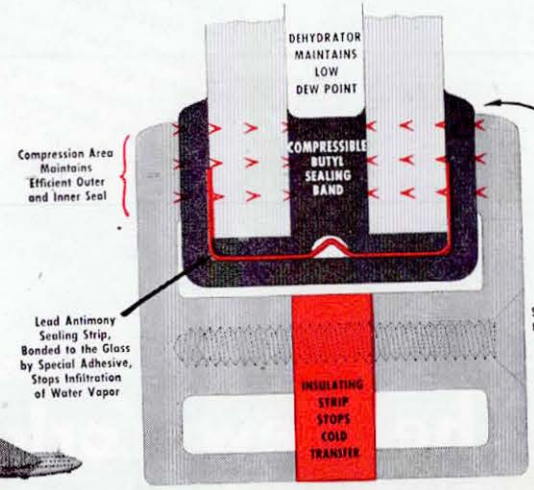
Vapor-Tight
DOUBLE SEALED
SASH

BY EDWARDS

New Vapor-Sealed Dehydrated Sash by Edwards for air conditioned cars in high speed, streamlined trains, is the last word in double glazed sash design. To passengers they bring windows of constant, crystal-clear visibility, regardless of weather, climate or altitude . . . to operators, units that are built to last for the life of the car with the absolute minimum of service.

Before preparing sash specifications for new or renovated equipment, get the facts on the new Edwards Vapor-Sealed Unit. It's the best designed, most ruggedly built, most efficient sash ever offered to the railroads of America—and it's competitively priced!

The O. M. Edwards Company, Inc., Syracuse, N. Y.


DEHYDRATOR MAINTAINS LOW DEW POINT
COMPRESSIBLE BUTYL SEALING BAND
Compression Area Maintains Efficient Outer and Inner Seal
Glass Mounted in Flexible Neoprene Channel
Lead Antimony Sealing Strip, Bonded to the Glass by Special Adhesive, Stops Infiltration of Water Vapor
Screws Tightened to Predetermined Pressure to Provide Proper Compression, and to Take Up All Variations
INSULATING STRIP STOPS COLD TRANSFER

SASH FOR EVERY TYPE OF TRANSPORTATION — ON LAND, ON THE SEAS, IN THE AIR

For Durable, Comfortable Station Floors and Platforms...

...SPECIFY COLD-LAID MASTIC!

That's the floor for you . . . for new construction or for complete reflooring over wood, steel or concrete. Why? Its many advantages have been proven over the years.

- It's tough. A cold-laid Mastic Floor made with Flintkote Flooring Emulsion has high point-load resistance. Takes heavy impact without chipping.
- It's resilient. Heals itself of minor scars and cuts. Absorbs shock and vibration. Makes a comfortable walking surface and withstands heavy trucking.
- It's clean and quiet. The "cushion" effect absorbs traffic noise. It's dustless . . . easy to keep clean.
- It's easily applied. Cold-laid, in a matter of hours . . . saves time and money.
- It's time saving. You can apply a Mastic Floor made with Flintkote Flooring Emulsion quickly and easily and open to traffic within 24 to 48 hours.

See what we mean? Write today for full information on cold laid Mastic Floors made with Flintkote Flooring Emulsions.

Flintkote-Products for Industry

THE FLINTKOTE COMPANY · INDUSTRIAL PRODUCTS DIVISION

Atlanta · Boston · Chicago Heights · Detroit · Houston

FLINTKOTE INDUSTRIAL PRODUCTS

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Los Angeles · New Orleans · Washington · Toronto · Montreal

WINDOWS OF CONSTANT, BRILLIANT VISIBILITY

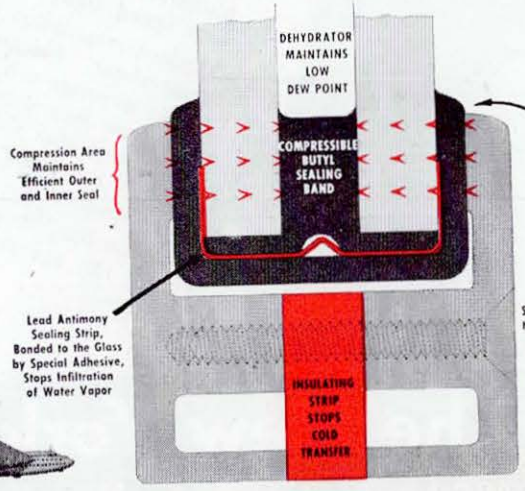
Vapor-Tight
DOUBLE SEALED
SASH

BY EDWARDS

New Vapor-Sealed Dehydrated Sash by Edwards for air conditioned cars in high speed, streamlined trains, is the last word in double glazed sash design. To passengers they bring windows of constant, crystal-clear visibility, regardless of weather, climate or altitude . . . to operators, units that are built to last for the life of the car with the absolute minimum of service.

Before preparing sash specifications for new or renovated equipment, get the facts on the new Edwards Vapor-Sealed Unit. It's the best designed, most ruggedly built, most efficient sash ever offered to the railroads of America—and it's competitively priced!

The O. M. Edwards Company, Inc., Syracuse, N. Y.


DEHYDRATOR MAINTAINS LOW DEW POINT
COMPRESSIBLE BUTYL SEALING BAND
Compression Area Maintains Efficient Outer and Inner Seal
Glass Mounted in Flexible Neoprene Channel
Lead Antimony Sealing Strip, Bonded to the Glass by Special Adhesive, Stops Infiltration of Water Vapor
Screws Tightened to Predetermined Pressure to Provide Proper Compression, and to Take Up All Variations
INSULATING STRIP STOPS COLD TRANSFER

SASH FOR EVERY TYPE OF TRANSPORTATION — ON LAND, ON THE SEAS, IN THE AIR

From the

FIRST STREAMLINER TO TODAY'S MODERN EQUIPMENT

HELPING to usher in new advances in motive power and rolling stock is an old habit with New York Air Brake Equipment. When the first streamliner, the Union Pacific's "City of Salina" was still in the blueprint stage, New York was ready with brakes specially designed for high speed, light weight service.

Modern retardation control is a vital part of the newest Union Pacific streamliner. Electro-pneumatic application and release and electric speed governor are important features of the 24-RL high speed passenger type locomotive brakes. Rapid, uniform deceleration is achieved with minimum risk of slid wheels. Fast, smooth slowing and stopping add to passenger comfort and are important in maintaining high average speeds.

As on the Union Pacific, New York Air Brake Equipment is safeguarding the operating performance of many of the country's high speed trains.

The New York Air Brake Company

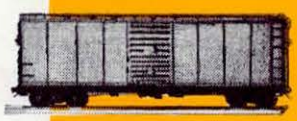
420 Lexington Ave., New York 17, N.Y. Plant: Watertown, N.Y.

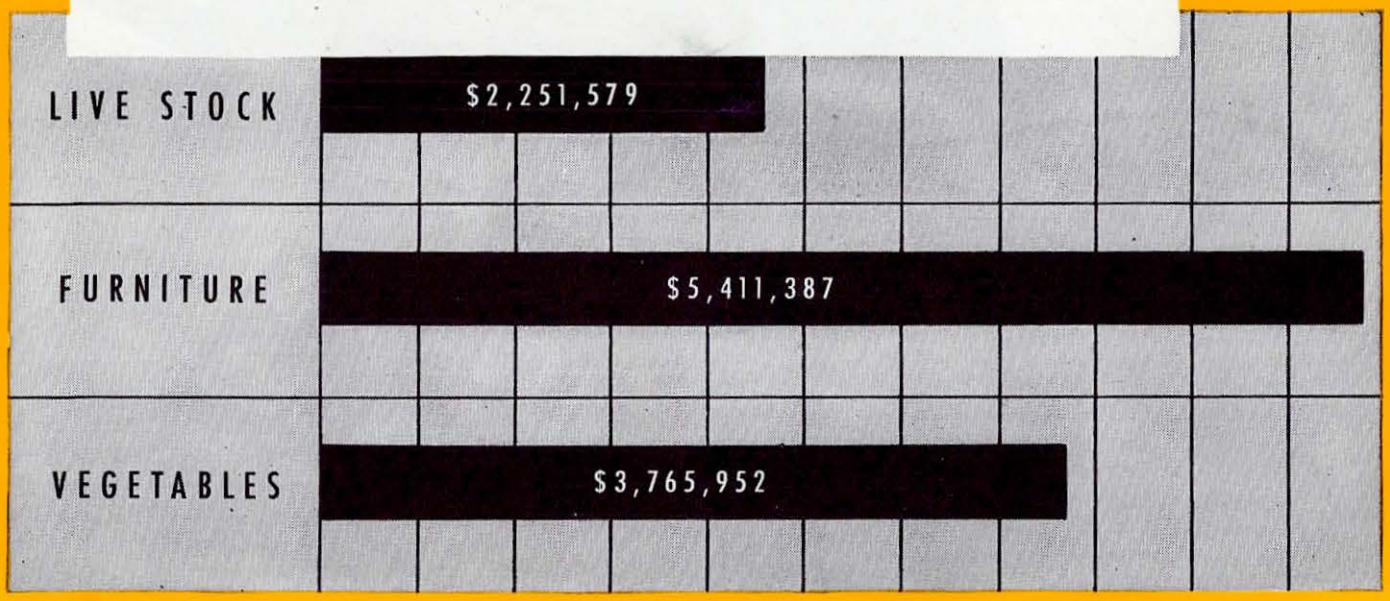
"WHY" *Ride-Control?*

There seems to be no doubt about the need for smooth-riding freight car trucks. But if proof is required, the chart below gives these reasons in *cold, hard dollars.* During 1945, unlocated and concealed lading damage amounted to well over $11,000,000 in these *three* categories alone.

As far back as 1939, tests by A.A.R. indicated the advisability of truck improvement, and established the fact that easy-riding qualities require *long-travel* springs, *properly* controlled. Since then, American Steel Foundries has invested more than a half-million dollars in developing, testing, and *perfecting* these principles in the modern Ride-Control Truck—with these results!

In less than three years, "Ride-Control" has grown from a name to nation-wide acceptance because Ride-Control Trucks ride *easily,* perform *smoothly,* at all loads, *all speeds*—because Ride-Control Trucks are easier on lading, rolling stock, and roadbed. Users have reordered as many as *twelve* times.



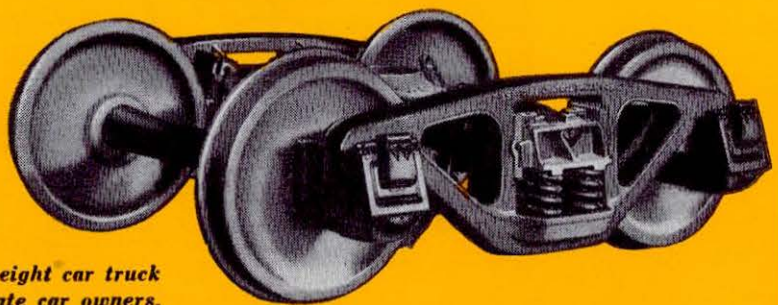


Unlocated and concealed damage as reported by A.A.R. Committee on Prevention of Loss and Damage, calendar year 1945.

A·S·F *Ride-Control* TRUCK

NO SPRING PLATES—NO SPRING PLANKS

LONG SPRING TRAVEL • CONSTANT FRICTION CONTROL



Already more than 39,000 car sets of this modern freight car truck are in service or on order for 64 railroads and private car owners.

AMERICAN STEEL FOUNDRIES

MINT-MARK OF ⬡ FINE CAST STEEL

Quality-built

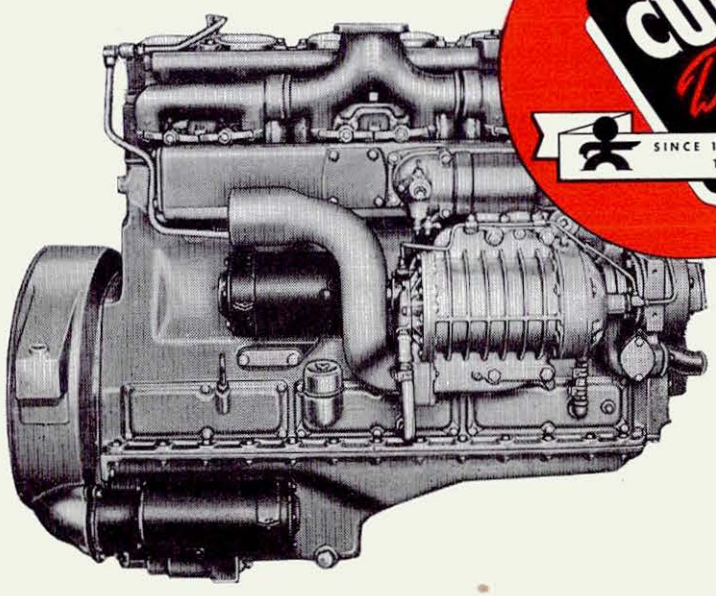
by the high-speed diesel pioneer

Economical

proved on jobs such as yours

and Serviced

by Cummins specialists located near you



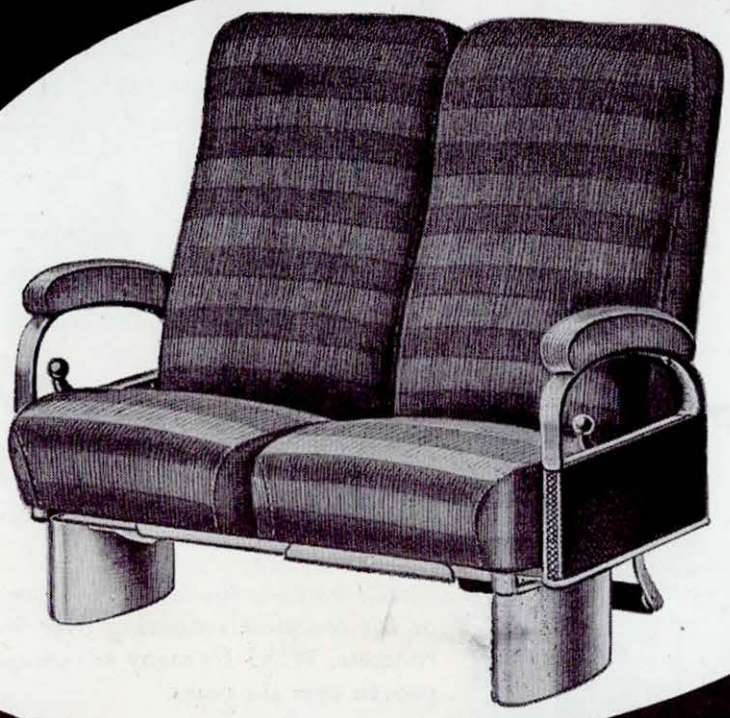
CUMMINS *Dependable* DIESELS

SINCE 1918...PIONEER OF PROFITABLE POWER THROUGH HIGH SPEED DIESELS

Cummins Diesel Railroad Equipment Co., Inc., 1030 Leggett Avenue, New York 55, New York

CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

Only GOODALL Pile Fabrics are *Blended-for-Performance*



TRAIN SEATS upholstered in new "Velmo" pile fabrics are softer and more beautiful... of course can be scrubbed clean and wear for years.

BLENDED TO *"Breathe"*

Special porous weave and backing permit these new pile fabrics to breathe. *Result:* greater coolness and comfort, easy cleanability.

BLENDED TO *"Wear longer"*

These new velvet-like pile fabrics have an ingenious construction. *Result:* Luxurious softness *plus* amazing wear.

BLENDED TO *"Clean easily"*

Special fiber construction makes these new pile fabrics dirt-resistant. *Result:* ordinary stains, dirt and grease disappear as if by magic.

BLENDED TO *"Stay color-bright"*

Goodall research develops special dyes and processes. *Result:* new pile fabrics whose colors stay bright anywhere—seaside, desert or plain.

• Each Goodall Fabric is specially blended of selected fibers and yarns. In creating the right type of "Velmo" for your business the natural qualities of mohair are improved by blending mohair fibers into exclusive yarns and weaves to perform its particular service for you supremely well.

Goodall-Fabrics INC.

Subsidiary of Goodall-Sanford, Inc.

THE FINEST NAME IN FABRICS

Offices in Boston, New York, Detroit, Chicago, Los Angeles

For Durable, Comfortable Station Floors and Platforms...

...SPECIFY COLD-LAID MASTIC!

That's the floor for you . . . for new construction or for complete reflooring over wood, steel or concrete. Why? Its many advantages have been proven over the years.

- It's tough. A cold-laid Mastic Floor made with Flintkote Flooring Emulsion has high point-load resistance. Takes heavy impact without chipping.
- It's resilient. Heals itself of minor scars and cuts. Absorbs shock and vibration. Makes a comfortable walking surface and withstands heavy trucking.
- It's clean and quiet. The "cushion" effect absorbs traffic noise. It's dustless . . . easy to keep clean.
- It's easily applied. Cold-laid, in a matter of hours . . . saves time and money.
- It's time saving. You can apply a Mastic Floor made with Flintkote Flooring Emulsion quickly and easily and open to traffic within 24 to 48 hours.

See what we mean? Write today for full information on cold laid Mastic Floors made with Flintkote Flooring Emulsions.

Flintkote-Products for Industry

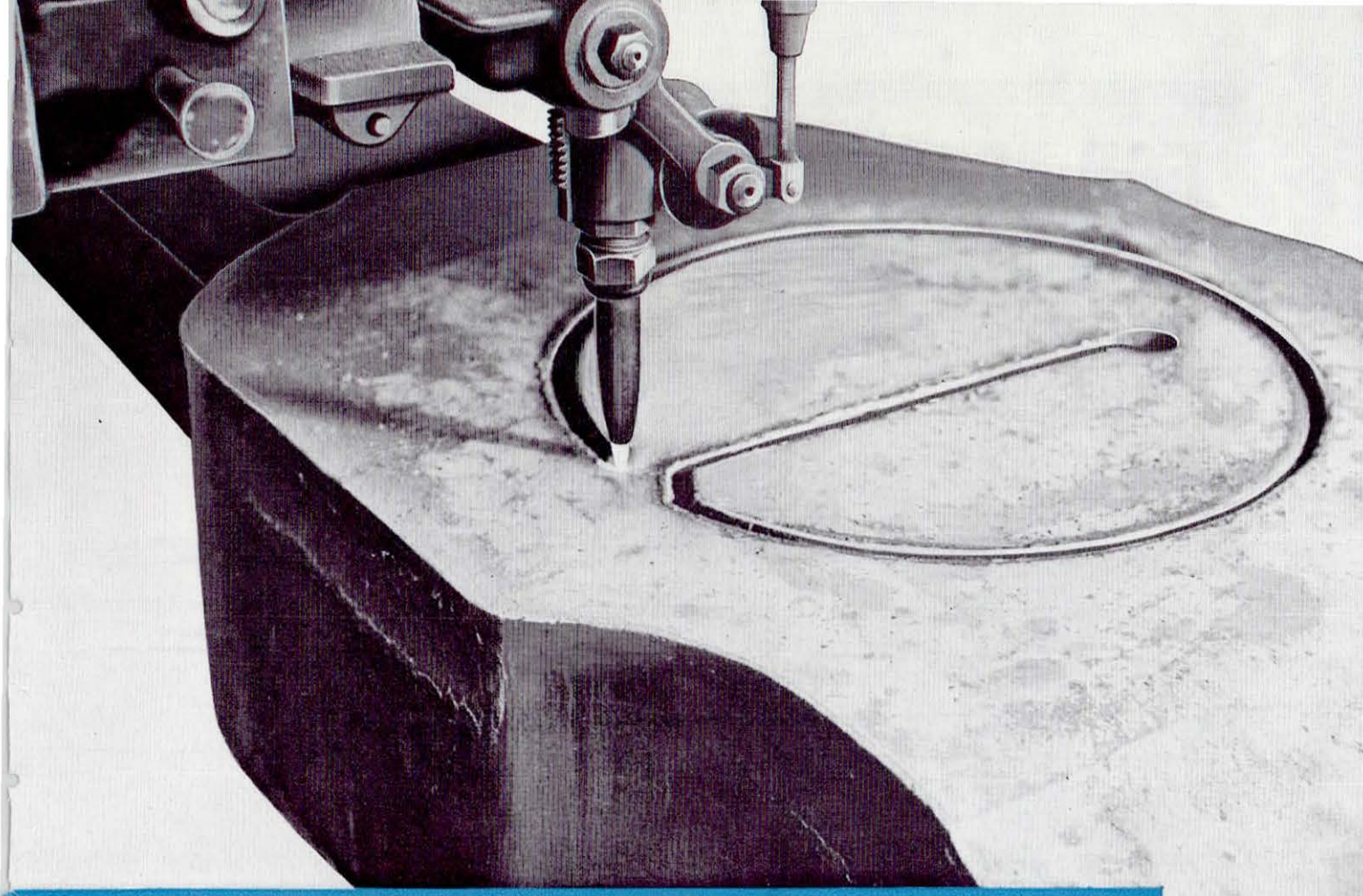
THE FLINTKOTE COMPANY · INDUSTRIAL PRODUCTS DIVISION

Atlanta · Boston · Chicago Heights · Detroit · Houston

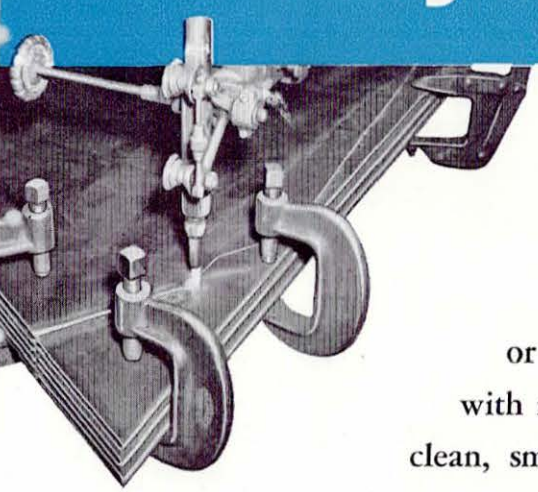
FLINTKOTE INDUSTRIAL PRODUCTS

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Los Angeles · New Orleans · Washington · Toronto · Montreal



This is your Stockpile

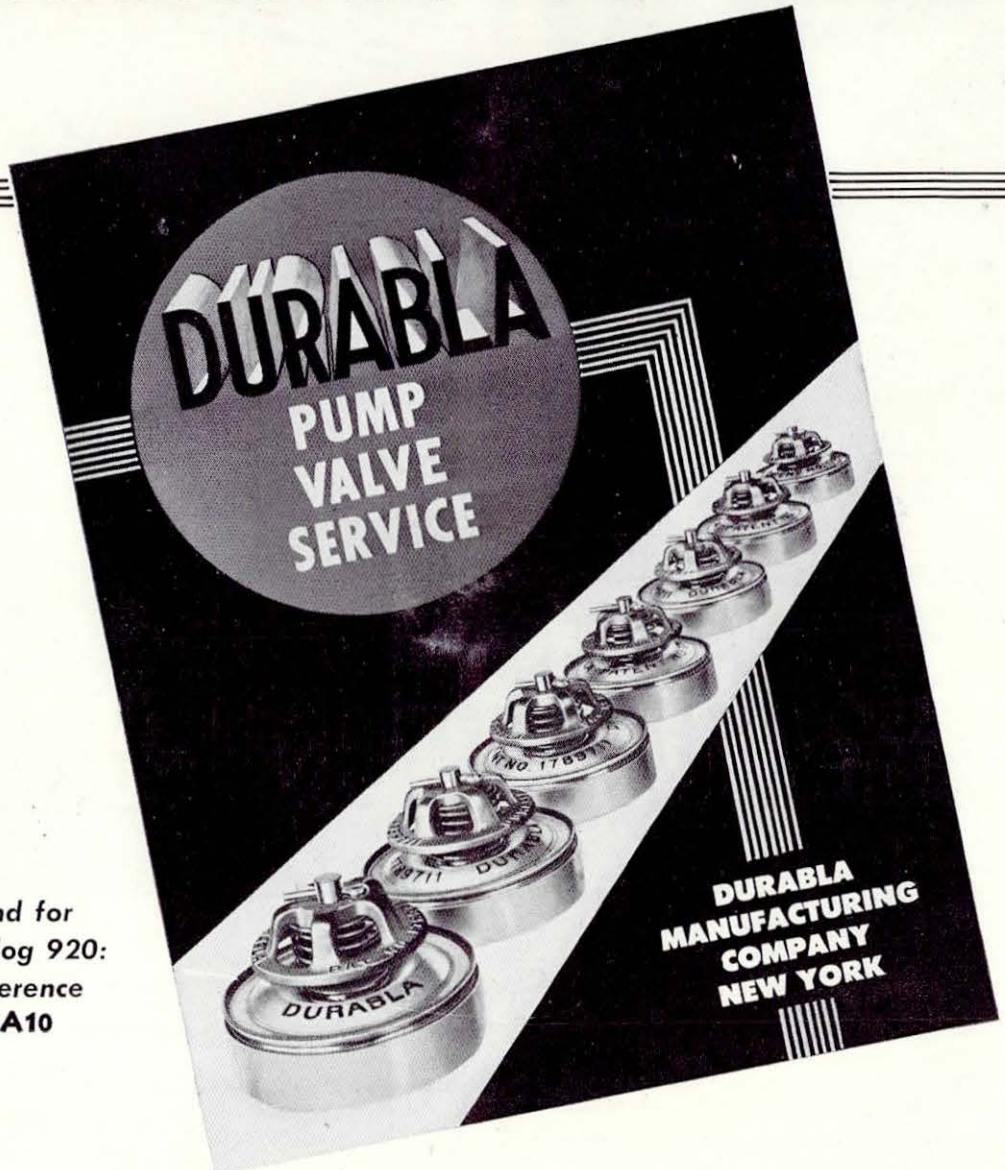


Heavy inventories and stockpiles of locomotive and car parts are unnecessary. Oxy-acetylene machine-cutting produces the parts — singly or in quantity — just when needed. Regular or irregular shapes of almost any size can be flame-cut with no more setup than changing the templet. Edges are clean, smooth, and can be cut to close tolerances. Ask an OXWELD representative for more information.

THE OXWELD RAILROAD SERVICE COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
Carbide and Carbon Building Chicago and New York
In Canada:
Canadian Railroad Service Company, Limited, Toronto

SINCE 1912 — THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS

FOR NEW STANDARDS OF RELIABILITY IN RECIPROCATING PUMP VALVES



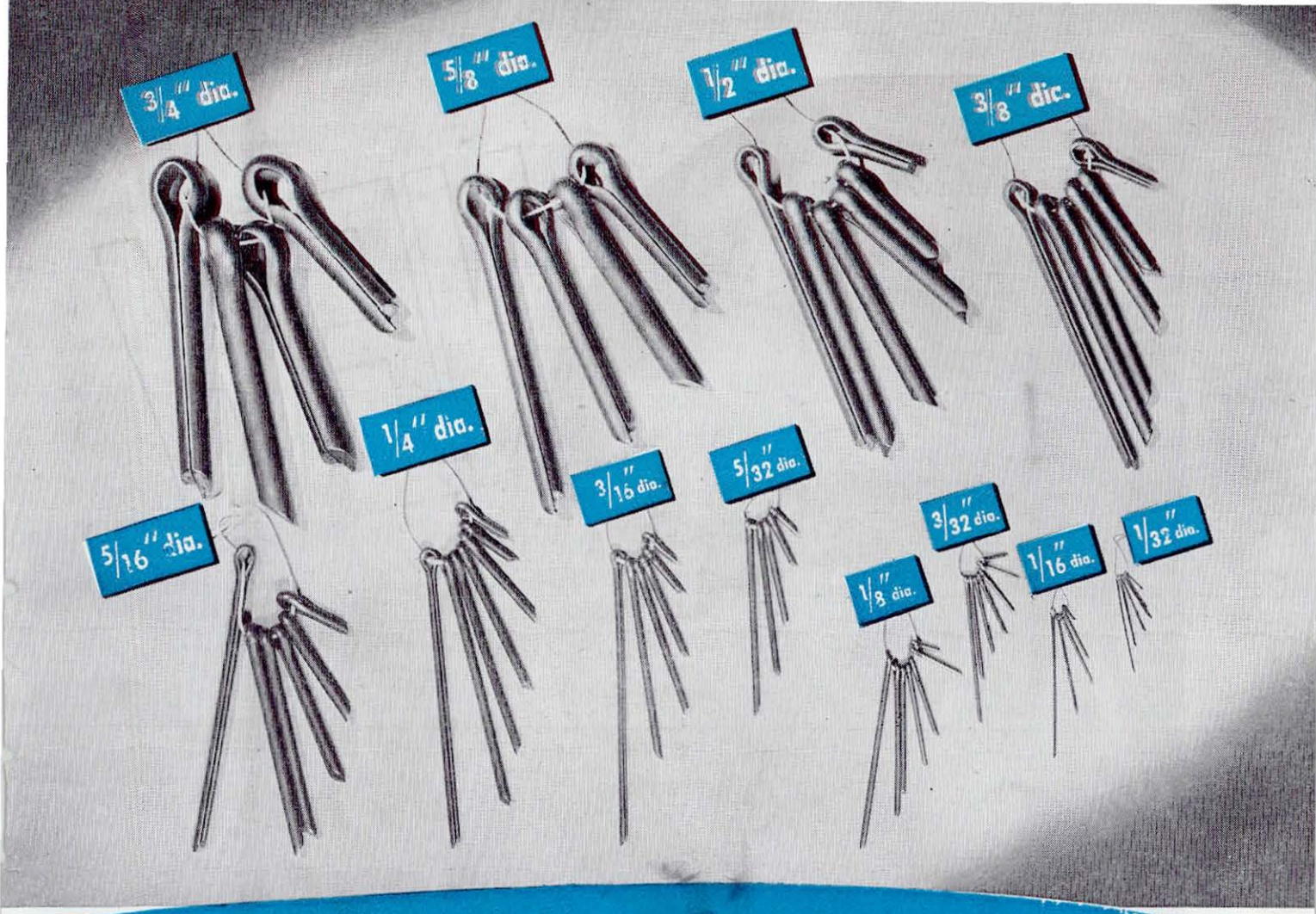
Send for Catalog 920: Reference **6A10**

Wherever pump valves are used — as "built-in" equipment or as replacement units — DURABLA PUMP VALVE UNITS* have established new standards for long term reliability, economy, and efficiency.

DURABLA Catalog 920 has just been published as your guide to the wide application and adaptability of DURABLA Pump Valves and the DURABLA way of solving your pump valve problems.

*Patent Numbers 2090486, 2117504

DURABLA MANUFACTURING COMPANY
114 LIBERTY ST. NEW YORK
BRANCHES IN PRINCIPAL CITIES. FOR CANADA REFER: CANADIAN DURABLA LIMITED, TORONTO



COTTERS . . FROM 1/32" x 1/4" TO 3/4" x 24"

along with your bolts and nuts

Our customers find it convenient to obtain bolts, nuts and cotters from the same source —in one shipment and on one bill of lading.

In addition to a full line of steel and brass cotters, Lamson & Sessions produces cotters made of bronze, stainless steel and aluminum alloys, made to your specifications *in production quantities.* Our extraordinary volume production of cotters is maintained by a large battery of machines designed and built exclusively for Lamson & Sessions.

The wire for Lamson cotters is cold rolled in our own plants, insuring control of both size and quality from raw material to finished product. Modern chemical, metallurgical and physical testing laboratories are maintained to insure uniformity of specifications in both standard cotters and those made "special".

The Lamson "Efficiency" point actually speeds up assemblies because of the diagonally cut points, one of which is longer than the other. This type cotter serves as a drift pin in aligning parts. A blow of a wrench or twist of pliers on the point of the longer shank spreads shanks apart quickly. Your jobber can supply you with Lamson cotters out of stock.

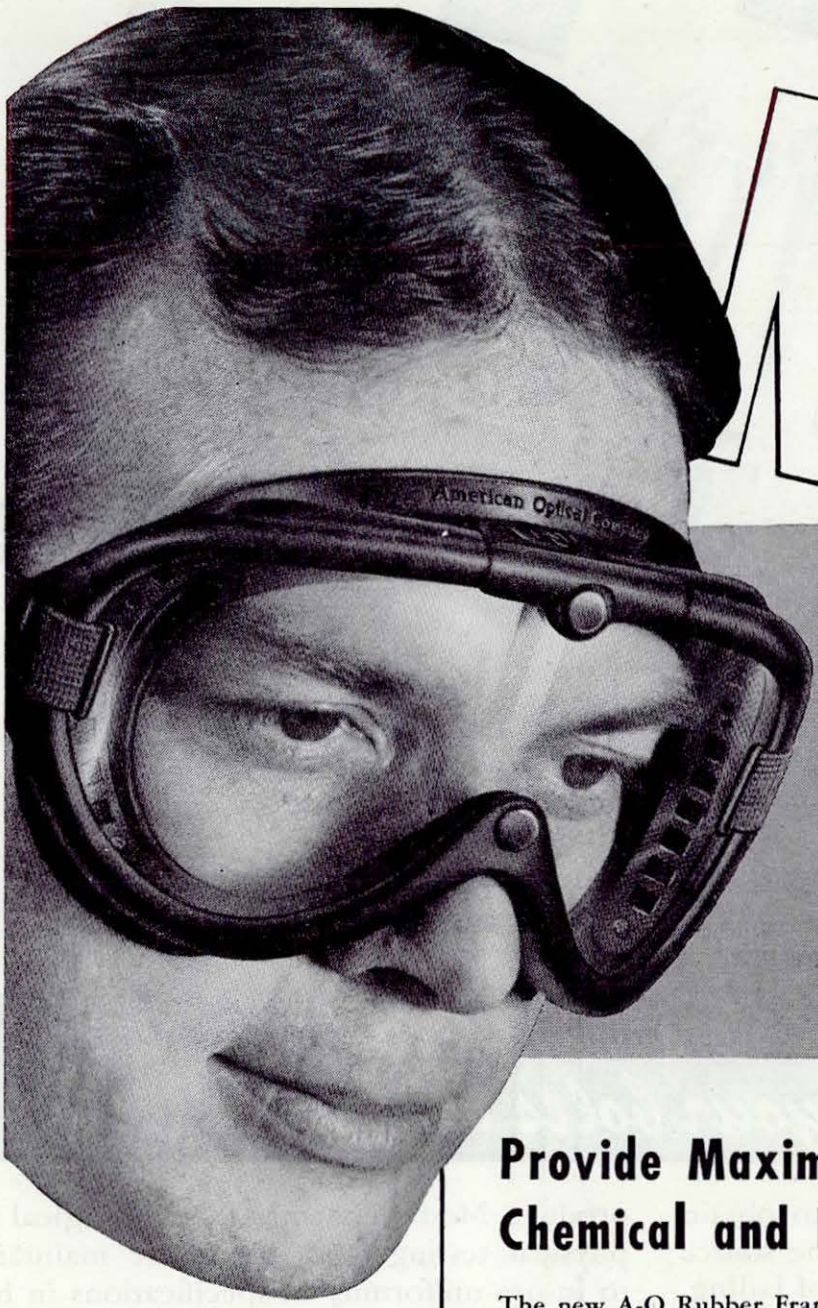
THE LAMSON & SESSIONS COMPANY, 1971 W. 85th St., Cleveland 2, Ohio

Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

LTS AND NUTS • WEATHER-TIGHT SHEATHING BOLTS • MACHINE SCREWS • FITTING-UP BOLTS • PIPE PLUGS •COTTERS • LAG SCREWS

LAMSON & SESSIONS

ILLED STUDS • WIRE ROPE CLIPS • FLAT SPRING KEYS • LOCK NUTS • SHEET METAL SCREWS • CAP SCREWS • SET SCREWS • KEY BOLTS



NEW

A-O RUBBER FRAME GOGGLES

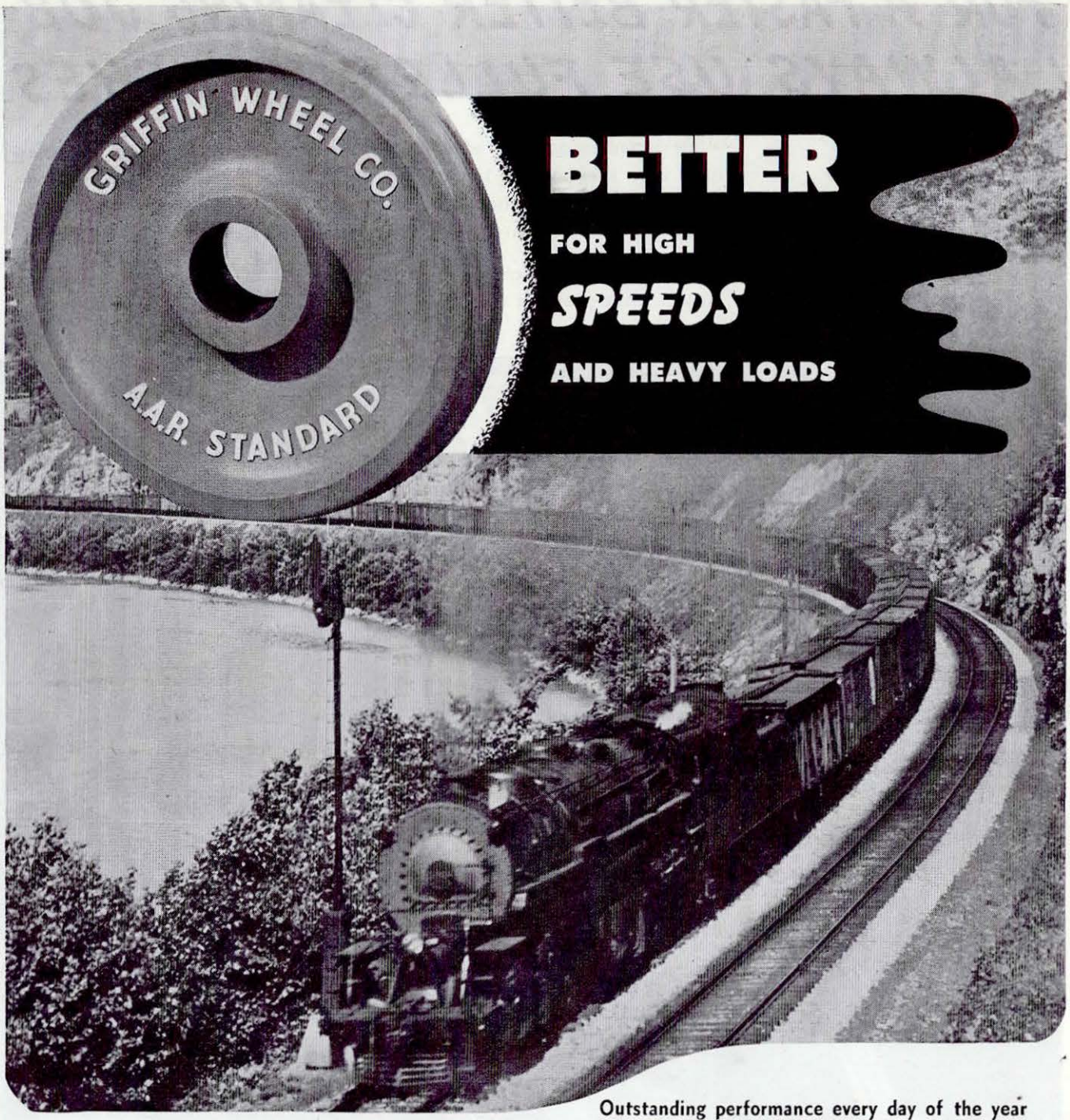
A-O Safety Goggles Safeguard the Eyes of Industry

Provide Maximum Protection Against Chemical and Dust Hazards . . .

The new A-O Rubber Frame Goggle has a single large acetate lens, which provides exceptional wide-angle vision. Frame is molded from non-irritating, acid-resisting synthetic rubber, which will stand up under long, hard wear. It is scientifically designed to conform to face contours, providing an acid- and dust-tight fit. Cushioned and ventilated for maximum comfort. Especially recommended for maintenance men on acid lines and storage batteries; for workers on metal plating baths, foundry shake-out, railroad car and coal handling apparatus cleaning, and in ship holds and engine cabs where dust is a dangerous factor. Send for bulletin which fully describes the various outstanding features of this new A-O development.

American Optical COMPANY *Safety Division*

SOUTHBRIDGE, MASSACHUSETTS
BRANCHES IN PRINCIPAL INDUSTRIAL CITIES



Outstanding performance every day of the year is the primary reason GRIFFIN Chilled Wheels are recognized as being better for the high speeds and under the heavy loads of today's freight service on the nation's railways.

This performance is the result of Griffin Wheel Company's continual research and improved manufacture to provide your railroad always with the best possible chilled wheels.

Your order sent to the Griffin Plant nearest you will have our prompt attention.

PLANTS

Chicago	Kansas City
Detroit	Council Bluffs
Boston	Denver
Cleveland	Salt Lake City
Cincinnati	Los Angeles
St. Paul	Tacoma

GRIFFIN WHEEL COMPANY

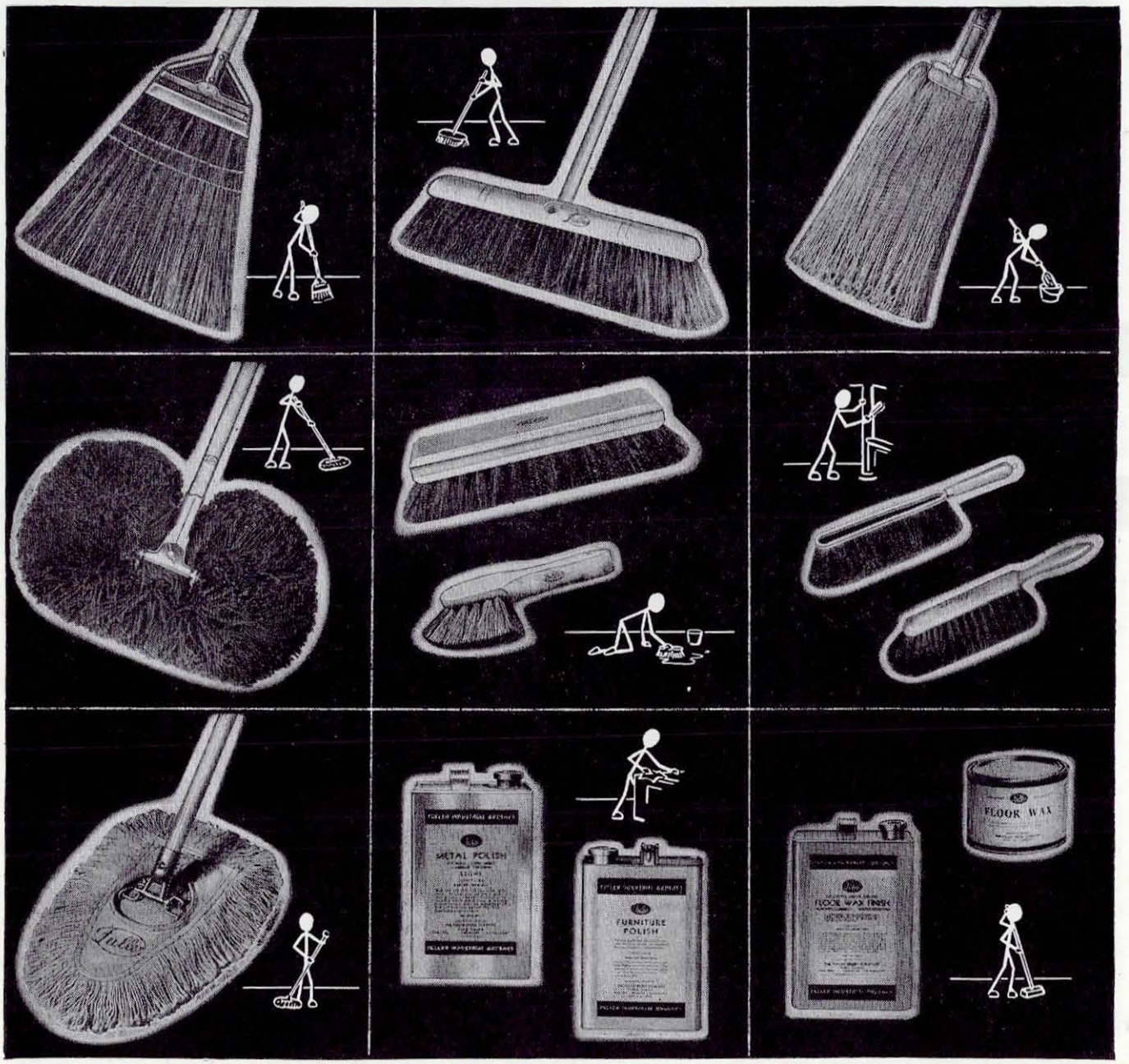
410 NORTH MICHIGAN AVENUE — CHICAGO 11, ILLINOIS

MEMBER — ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

FOR A FASTER BETTER CLEANING JOB I ALWAYS USE FULLER BRUSHES

• Designed to do more efficient work with less effort. Fuller Brushes have been the favorite for many years of leading railroads and industrial concerns throughout the country. They do a better job and last longer because they are carefully constructed of the finest materials.

Fuller Cleaning Equipment is available to meet every cleaning need. Assure your plant of the best. Write for the Fuller catalog today.



THE FULLER BRUSH COMPANY

INDUSTRIAL DIVISION DEPT. 94 HARTFORD 2, CONNECTICUT

saves time and money

The Bendix V.H.F. Radio saves time and money in all railroad applications. Its quick-as-a-flash, clearly audible, message delivery provides instantaneous person-to-person communication when and where needed.

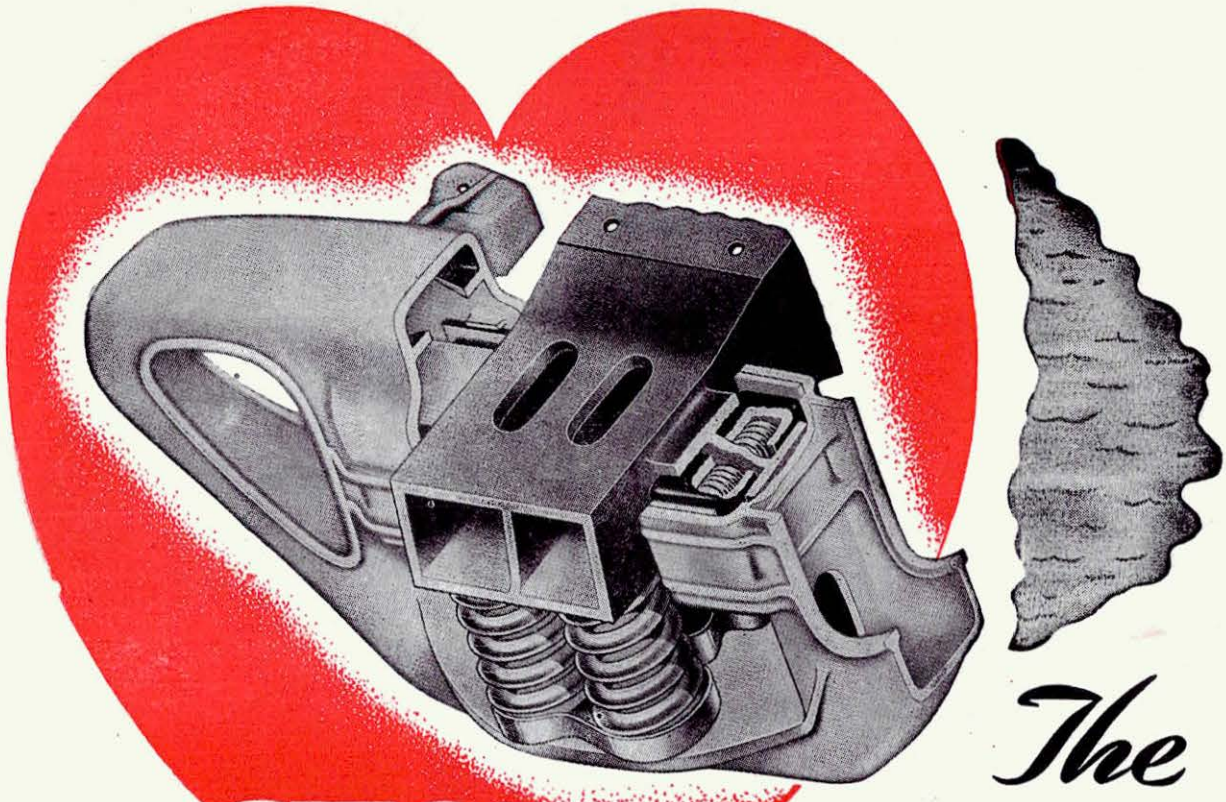
V.H.F. (Very High Frequency) means that operation is crystal clear, static-free and precise under all conditions — an accuracy that permits no guess work.

Major railroads now using Bendix V.H.F. Radio find that the System more than meets their expectations. They're saving time and money—you can, too. Our Sales Engineers are ready to consult with you—at no obligation. Write, wire or phone for further details about this time-and-money saver—especially designed for instantaneous railroad communication.

BENDIX RADIO

BENDIX RADIO DIVISION
Bendix Aviation Corporation
BALTIMORE 4 • MARYLAND

PRODUCT OF Bendix AVIATION CORPORATION



The STOUT HEART

of the New SCULLIN L-V TRUCK

LATERAL-VERTICAL L-V CUSHIONED MOTION

—one simple device cushions and controls both lateral and vertical motion

Simple, trouble-free design based on time-tested railroad principles—no costly, hard-to-maintain attachments.

- This unique arrangement of built-in lateral springs functions between side frame and bolster. It provides controlled, resilient cushioning of lateral motion and actuates snubbing elements which cushion and control vertical motion.
- The resilient contact between side frame and bolster maintains constant controlled alignment—eliminates lateral impacts—reduces lateral journal stresses.
- Designed to make higher speeds really *safe* for lading, cars and roadbed.

For complete details and engineering data write:

ARMY NAVY

SCULLIN STEEL CO

SAINT LOUIS 10, MISSOURI

STEEL CASTING MANUFACTURERS SINCE 1899

NEW YORK • CHICAGO • PHILADELPHIA • CLEVELAND • ST. PAUL • BALTIMORE • RICHMOND, VA. • MEXICO CITY, D. F.

on LAND on SEA and in the AIR

TRAVEL COMFORT CUSHIONS

Comfort Engineering

IS APPLIED TO

TRAVEL COMFORT CUSHIONS*

• Comfort is the first essential of your seating, if extra traffic is to be attracted to your system or line.

Travel Comfort Cushions are engineered for comfort, first; secondly, for permanent beauty; and third, for long-lived service.

The comfort engineering of Travel Comfort Cushions starts with the design for shape, size, thickness and types of materials to be used for various seating purposes. Long haul seating requires different specifications than for seating on short hauls.

The combination of top pads of either soft pliability or firm surfacing with the floating action of the spring construction of Travel Comfort Cushions induces a state of restful comfort, which can be unconsciously enjoyed by the passenger over long riding periods.

Proper selection of highest grade materials, skillful workmanship, strict supervision and careful engineering design makes possible the policy to

Fully Guarantee

TRAVEL COMFORT CUSHIONS*

for comfort, beauty and trouble-free service. Travel Comfort Cushions will help you build and hold increased traffic. They will save maintenance costs. Specify Travel Comfort Cushions on your new or rehabilitated seating installations.

You can have any type of top pads you want on your Travel Comfort Cushions: curled hair, rubberized hair, vegetable fibres, synthetic rubber, natural and synthetic rubber combinations and numerous other filler materials.

• Cool Comfort

• Floating Comfort

• Permanently Beautiful

*Trade Mark

TRAVEL COMFORT CUSHIONS *Ideal for* Train or Plane, For Bus or Truck, For Transit Cars or Cabs

McINERNEY SPRING AND WIRE COMPANY

Factories: Grand Rapids, Michigan, and Passaic, New Jersey

SALES OFFICES: 661 Godfrey Ave., S. W., Telephone 6-1481, GRAND RAPIDS

CHICAGO — 205 W. WACKER DRIVE — FRAnklin 5780

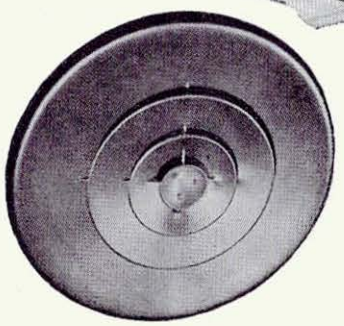
DETROIT — 911 FISHER BUILDING — MAdison 4425

The Best Laid Plans...

will include

ANEMOSTAT

DRAFTLESS AIR-DIFFUSION for *successful* air-conditioning



On the boards today, the ultra-modern trains of tomorrow are being designed to roll faster, smoother, quieter, and safer. Incorporating all the newest ideas for utmost passenger comfort, they will add much to the joy of traveling.

The best laid plans for newly-designed railroad cars include *successful* air-conditioning. To get it, more and more railroad car designers are specifying Anemostat — the patented air-diffuser — which completes the air-conditioning process by providing scientifically correct distribution of the conditioned air to every part of any car.

Each type of sleeper, diner and coach requires its own special air-diffusion pattern. Add to this the extreme changes proposed in their structural design, interior decoration, equipment — and the need for Anemostat's correctly engineered air-distribution becomes clearly evident. Without it, the air-conditioning system is incomplete — drafts occur, stale air-pockets persist, temperature and humidity are unequalized.

The Anemostat Air-Diffuser eliminates these trouble-breeders by distributing conditioned air in pre-determined patterns, and precisely in accordance with prescribed air velocities. The result: *SUCCESSFUL* air-conditioning for *true* air-comfort!

Anemostat engineers are air-diffusion specialists. Backed by 25 years of experience, they can capably solve difficult problems in air-diffusion. A consultation with an Anemostat engineer can be arranged today. There is no obligation.

Descriptive literature is available on request.

AC-1088

"No air-conditioning system is better than its air-distribution"

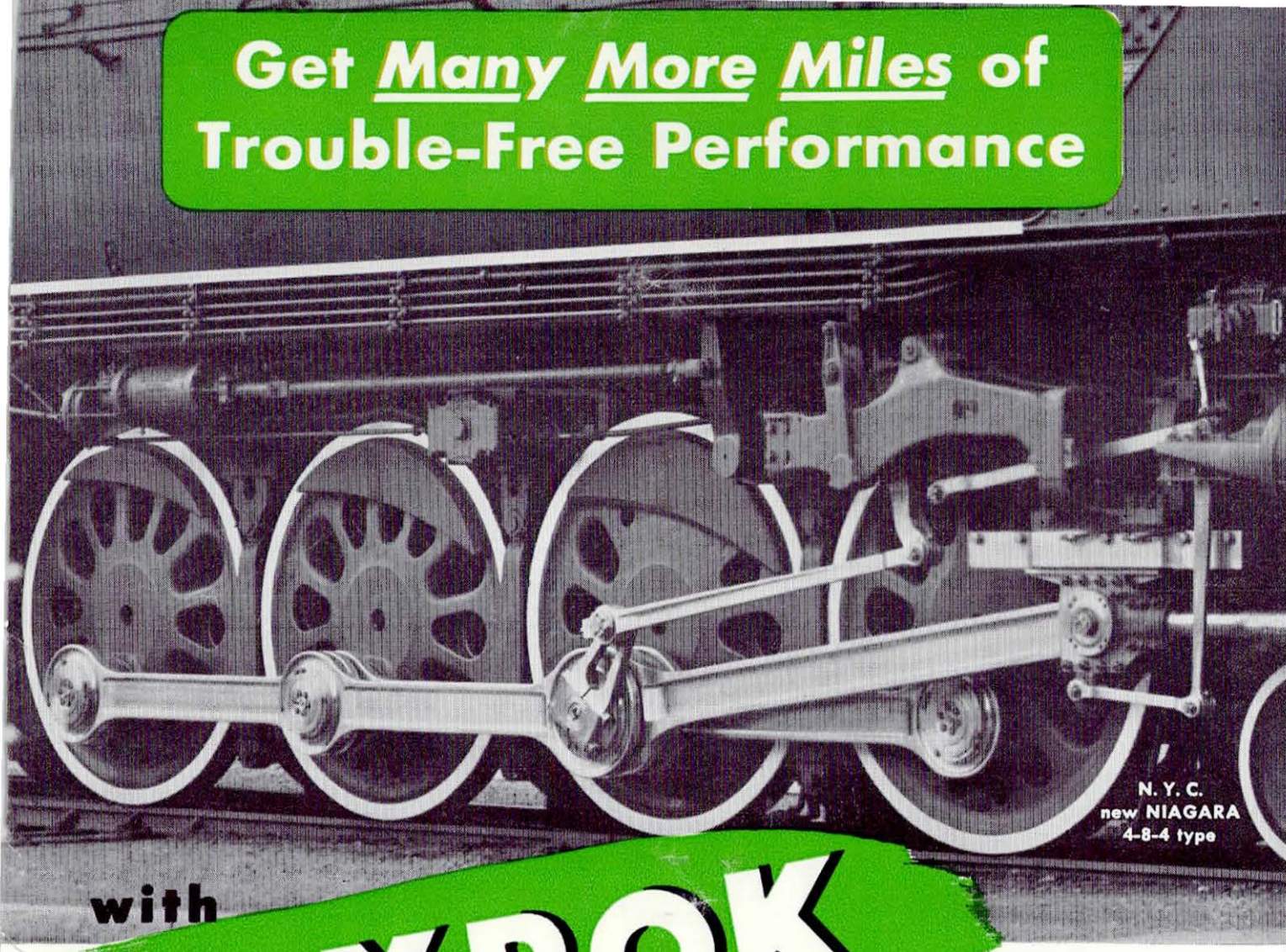
ANEMOSTAT

REG. U. S. PAT. OFF.

ANEMOSTAT CORPORATION OF AMERICA
10 East 39th Street, New York 16, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

Get *Many More Miles* of Trouble-Free Performance



with BOXPOK DRIVING WHEELS

BECAUSE of the better and more economical distribution of metal, BOXPOK Driving Wheel Centers are stronger, both laterally and in the rim.

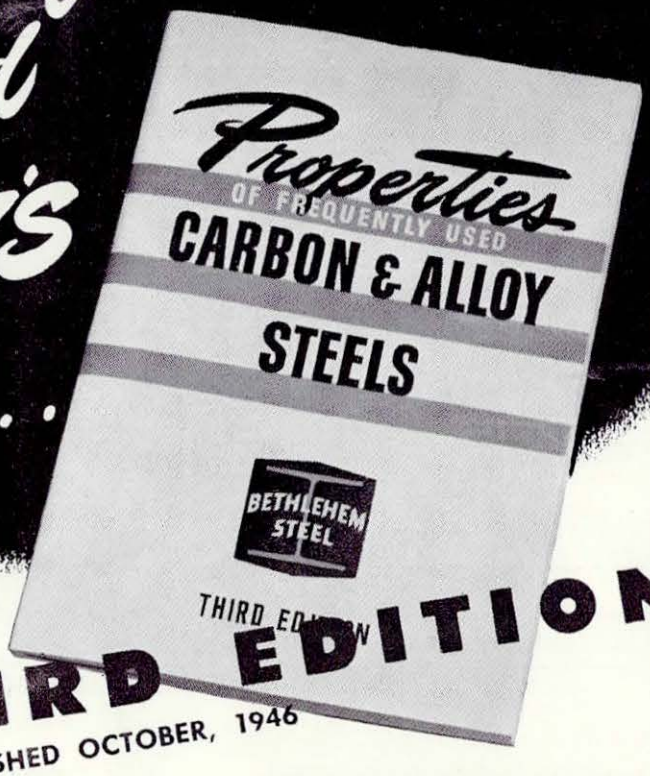
The box section rim construction, with supporting walls on both sides, has much greater strength and more uniform tire support, preventing out-of-round wheels and flat spots, increasing tire mileage and reducing wheel maintenance. The design also has greater strength to resist high piston thrusts, lateral forces and rail impacts.

For Less Wear and Tear on Track and Locomotive, Specify BOXPOK!

GENERAL STEEL CASTINGS

EDDYSTONE, PA. GRANITE CITY, ILL.

Here's NEW information you need on TODAY'S STEELS...



NEW THIRD EDITION

PUBLISHED OCTOBER, 1946

Here is a book for the materials engineer, the metallurgist, the heat-treater, the designer, or any one who needs accurate, dependable data on modern steels.

This new, third edition contains 132 pages, and is the result of more than 18 months of exhaustive research and laboratory testing conducted by Bethlehem metallurgists.

Charts, graphs and tables give complete properties of widely-used AISI carbon steels and alloy steels. The material is so arranged that a glance will tell what you want to know about any given steel. Also included are timely articles on subjects of broad metallurgical interest, written in simple, understandable terms.

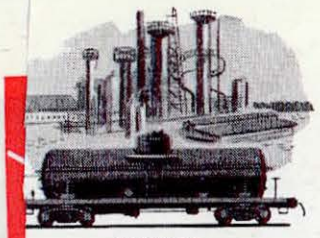
If you use steel or specify steel in any form you will find much valuable information in the third edition of "Properties of Frequently used Carbon and Alloy Steels."

A PARTIAL LIST OF ITEMS IN THIS 132-PAGE BOOK

- SAE recommended heat treatments
- Carbon Steel Treatment Charts, carburizing grades
- Carbon Steel Treatment Charts, water- and oil-hardening grades
- Alloy Steel Treatment Charts, carburizing grades
- Alloy Steel Treatment Charts, water-hardening grades
- Alloy Steel Treatment Charts, oil-hardening grades
- Temperature Color Charts
- End-quench hardenability testing
- Calculation of end-quench hardenability
- End-quench hardenability, alloy carburizing grades
- End-quench hardenability, alloy water-hardening grades
- End-quench hardenability, alloy oil-hardening grades
- Quenching media
- Magnetic analysis inspection
- Magnetic particle inspection
- Induction hardening
- Machinability of Alloy Steels
- Decarburization
- Isothermal transformation diagrams

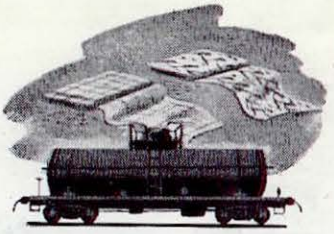
Write for your free copy to Bethlehem Steel Company, Bethlehem, Pa. ★ BETHLEHEM STEEL ★

If you are located in the far West, write to Bethlehem Pacific Coast Steel Corporation, San Francisco.



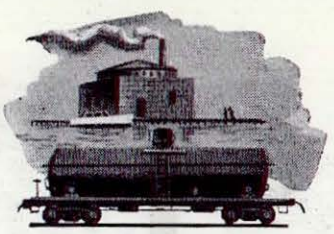
ALCOHOL

lean, steel car, 6,000 to 10,000 gallon capacity.



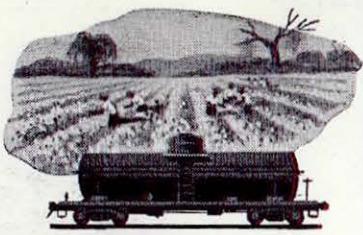
CAUSTIC SODA

Heavily insulated steel car, with or without heater coils, 8,000 or 10,000 gallon capacity. Usually specially lined.



CHLORINE

Insulated, welded car; built to withstand pressure up to 500 pounds; 15 or 30 ton capacity.

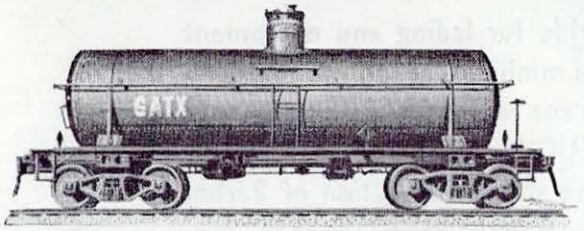


COTTONSEED OIL

Clean, steel coiled car of 8,000 gallon capacity.

FOR RENT

TANK CARS



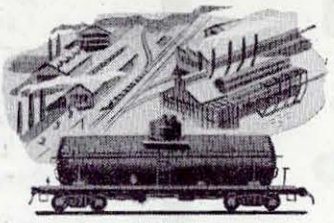
Tank car transportation of liquids in bulk, pioneered by General American has proved its versatility, its efficiency, its economy.

The General American fleet comprises more than 37,000 specialized tank cars . . . 207 different types of tank cars . . . designed for the safe and swift hauling of an almost infinite variety of liquids.

General American's strategically located offices, plants, and repair shops keep these tank cars at your service; provide you with precisely the type of tank cars you want, *where* you want them.

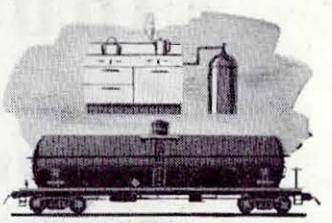
If your problem is the transportation of liquids in bulk, let the nearest General American office help you.

GENERAL AMERICAN TRANSPORTATION
CORPORATION
GENERAL OFFICE: 135 South La Salle Street • Chicago 90, Illinois
DISTRICT OFFICES:
New York • St. Louis • Buffalo • Seattle • Los Angeles • Dallas • Houston
Tulsa • New Orleans • Cleveland • Pittsburgh



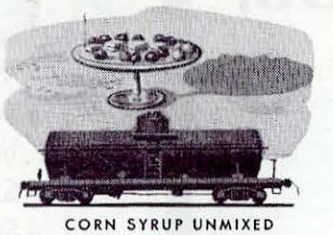
FUEL OIL

Steel car, steam coiled, 8,000 to 12,500 gallon capacity.



PROPANE

Heavily constructed car, welded and insulated. Built to withstand internal pressures to 300 pounds. Capacity 10,000 to 11,000 gallons.

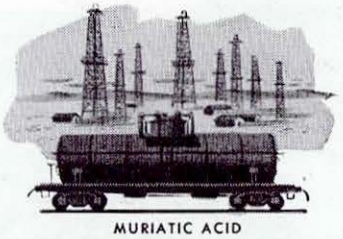


CORN SYRUP UNMIXED

Clean, steam coiled with heavy truck capacity. Usually lined with aluminum paint.

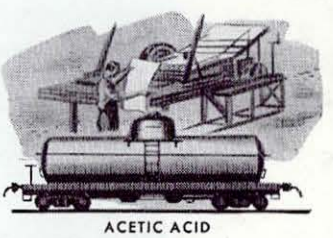
LUBRICATING OIL

Steel car, with steam coils, single or multiple compartment; usually 8,000 gallon capacity.



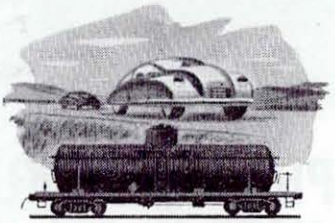
MURIATIC ACID

Car lined with pure or synthetic rubber; 8,000 to 10,000 gallon capacity.



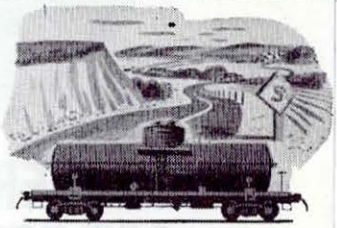
ACETIC ACID

Aluminum Car, 8,000 or 10,000 gallon capacity.



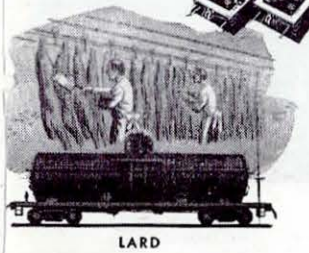
GASOLINE

Clean car, 6,000 to 12,500 gallons; single or multiple compartment.



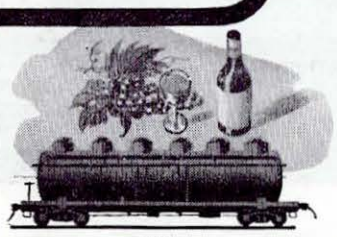
ASPHALT OR TAR

Heavily steam coiled car; with 2 or more inches of insulation; steam jacketed outlet; 8,000 to 10,000 gallon capacity.



LARD

lean steam coiled car, usually of 8,000 gallon capacity.

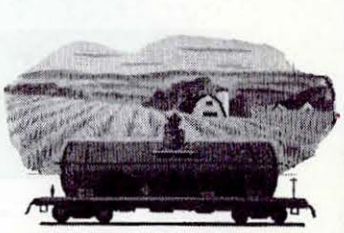


WINE

Insulated car with one to six compartments. Interior coated to preserve quality.

MOLASSES

Steam coiled car with heavy capacity trucks; 8,000 gallon capacity.



SULPHURIC ACID

Heavily constructed steel car with heavy truck capacity. Equipped to unload through dome.

Workin' on the Railroad Since '86

Sixty years may be just the beginning—that is how we feel at Safety Company, where "workin' on the railroad" is no figure of speech . . . we do it actually.

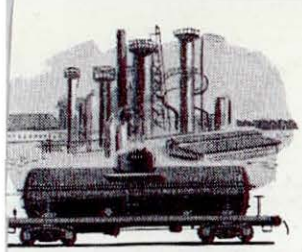
In addition to designing and manufacturing Safety Company car lighting, generator and air conditioning equipment, Safety Company engineers and maintenance men have serviced our equipment in use for many of America's leading railroads.

This practical field experience—working on the railroad—is reflected on our design boards by progressive improvements to equipment. It is reflected in our manufacturing methods and processes. And it is reflected to you thru performance that adds up to long life and higher efficiency from Safety Company equipment.

SAFETY COMPANY PRODUCTS INCLUDE: Complete Air Conditioning Equipment; Bag Racks; Fans; Genemotors; Generators; Lighting Fixtures; Motor Alternators; Regulators; Switchboards.

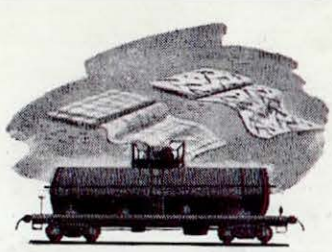
THE SAFETY CAR HEATING AND LIGHTING COMPANY INC.

NEW YORK • CHICAGO • PHILADELPHIA • ST. LOUIS • BOSTON • SAN FRANCISCO • MONTREAL



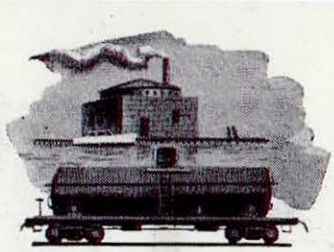
ALCOHOL

lean, steel car, 6,000 to 10,000 gallon capacity.



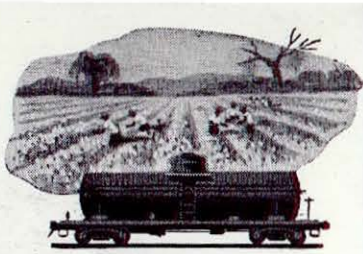
CAUSTIC SODA

Heavily insulated steel car, with or without heater coils, 8,000 or 10,000 gallon capacity. Usually specially lined.



CHLORINE

Insulated, welded car; built to withstand pressure up to 500 pounds; 15 or 30 ton capacity.

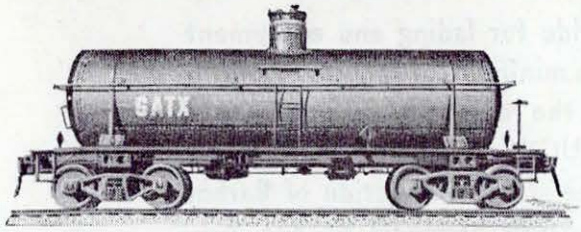


COTTONSEED OIL

Clean, steam coiled car of 8,000 gallon capacity.

FOR RENT

TANK CARS



Tank car transportation of liquids in bulk, pioneered by General American has proved its versatility, its efficiency, its economy.

The General American fleet comprises more than 37,000 specialized tank cars . . . 207 different types of tank cars . . . designed for the safe and swift hauling of an almost infinite variety of liquids.

General American's strategically located offices, plants, and repair shops keep these tank cars at your service; provide you with precisely the type of tank cars you want, *where* you want them.

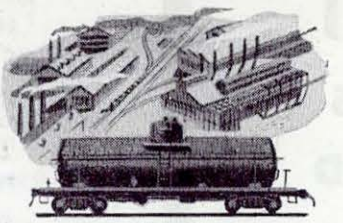
If your problem is the transportation of liquids in bulk, let the nearest General American office help you.

GENERAL AMERICAN TRANSPORTATION CORPORATION

GENERAL OFFICE: 135 South La Salle Street • Chicago 90, Illinois

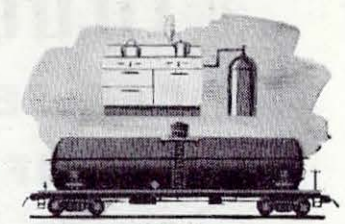
DISTRICT OFFICES:

New York • St. Louis • Buffalo • Seattle • Los Angeles • Dallas • Houston
Tulsa • New Orleans • Cleveland • Pittsburgh



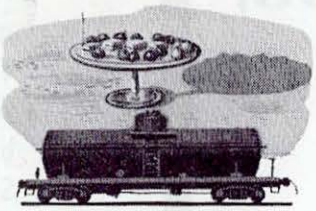
FUEL OIL

Steel car, steam coiled, 8,000 to 12,500 gallon capacity.



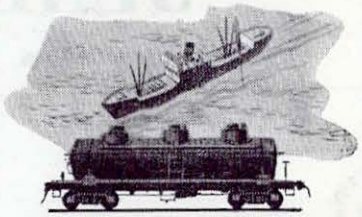
PROPANE

Heavily constructed car, welded and insulated. Built to withstand internal pressures to 300 pounds. Capacity 10,000 to 11,000 gallons.



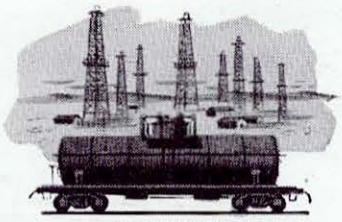
CORN SYRUP UNMIXED

Clean, steam coiled with heavy truck capacity. Usually lined with aluminum paint.



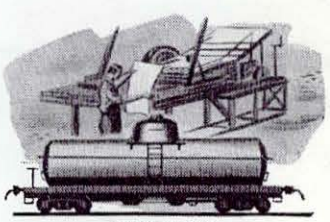
LUBRICATING OIL

Steel car, with steam coils, single or multiple compartment; usually 8,000 gallon capacity.



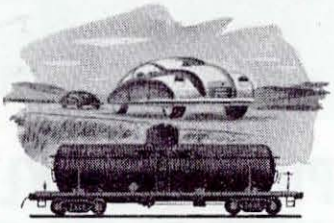
MURIATIC ACID

Car lined with pure or synthetic rubber; 8,000 to 10,000 gallon capacity.



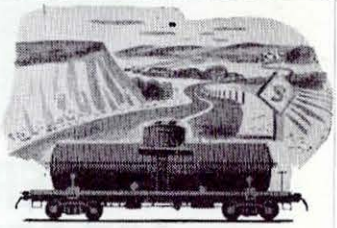
ACETIC ACID

Aluminum Car, 8,000 or 10,000 gallon capacity.



GASOLINE

Clean car, 6,000 to 12,500 gallons; single or multiple compartment.

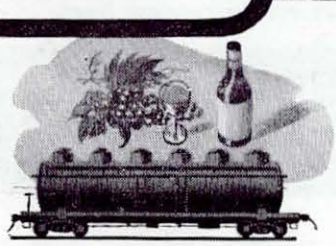


ASPHALT OR TAR

Heavily steam coiled car; with 2 or more inches of insulation; steam jacketed outlet; 8,000 to 10,000 gallon capacity.

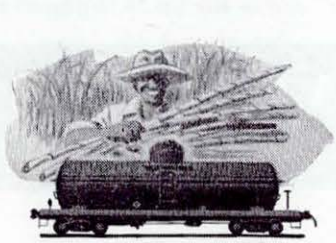
LARD

lean steam coiled car, usually of 8,000 gallon capacity.



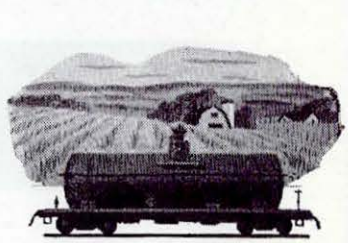
WINE

Insulated car with one to six compartments. Interior coated to preserve quality.



MOLASSES

Steam coiled car with heavy capacity trucks; 8,000 gallon capacity.



SULPHURIC ACID

Heavily constructed steel car with heavy truck capacity. Equipped to unload through dome.

OVER

10,000

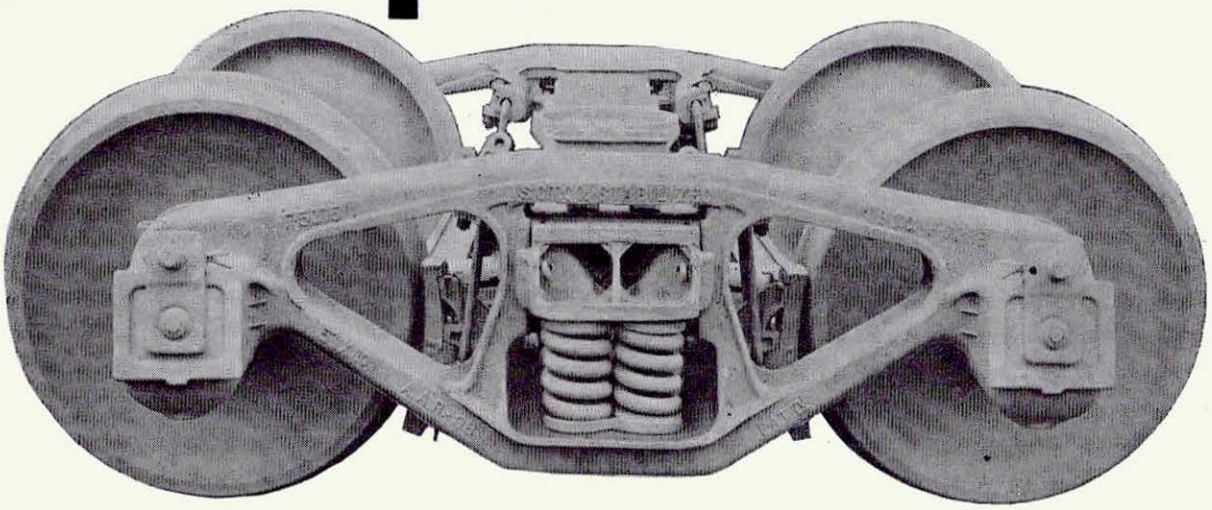
CAR SETS SPECIFIED SINCE

JUNE 30, 1946

Proof of the performance is in the ordering.

Almost 50% of the freight cars ordered since June 30, 1946, will roll on BARBER STABILIZED TRUCKS. Outstanding proof that the railroads are depending more and more on these trucks for better than average service.

An easy ride for lading and equipment and with a minimum of required maintenance are the reasons BARBER STABILIZED TRUCKS are being increasingly used. The stabilizing action of Barber Trucks controls harmonic bounce, prevents broken springs and eliminates bolster and column wear. Some Barber Stabilized Trucks have already seen over 500,000 miles of service with practically no maintenance.



BARBER SPRING-PLANKLESS STABILIZED TRUCKS ARE BEING USED IN ALL TYPES OF FREIGHT SERVICE

Over 110,000 car sets of Barber Stabilized Trucks are in use on 58 different railroads and private car lines.

STANDARD CAR TRUCK COMPANY

332 SOUTH MICHIGAN AVENUE CHICAGO 4, ILLINOIS

HONEYWELL *Electrons* Are Here . . .

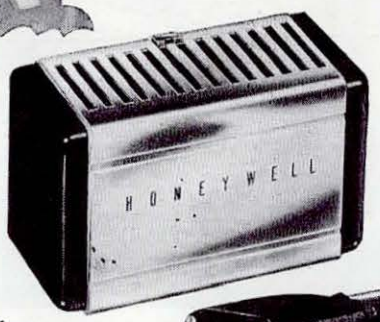
FOR PASSENGER CAR TEMPERATURE CONTROL

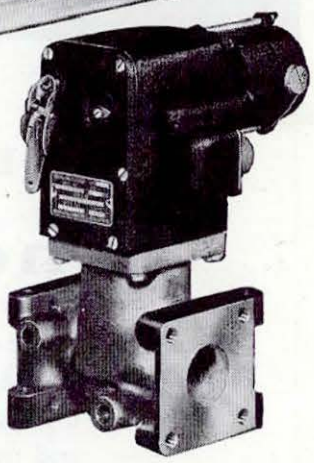
NOW, Honeywell offers you an electronic system of air conditioning control for passenger cars!

This means continuous, air-conditioned comfort—the same comfort that Moduflow, the most talked-of development in the history of automatic heating, is now bringing to modern homes everywhere.

Instead of the conventional on-and-off method of heat supply, this new Honeywell system furnishes true heat modulation *continuously* to replace the constant loss. This replacement of heat is electronically "metered" to supply just the right amount to balance the loss.

This electronic control system provides the ultimate in sensitivity and speed of response to meet rapidly changing load conditions. Automatically, compensation is made for such typical variations as outside temperatures, solar effect, train speed and passenger load. Get the complete information now about this newest Honeywell railroad development. Write Minneapolis-Honeywell Regulator Company, Railway Controls Division, 435 East Erie Street, Chicago 11, Illinois.





Top: Honeywell Electronic Thermostat.

Above: Modulating Valve.

Left: Amplifier.

MINNEAPOLIS
Honeywell
RAILWAY CONTROLS DIVISION

Workin' on the Railroad Since '86

Sixty years may be just the beginning—that is how we feel at Safety Company, where "workin' on the railroad" is no figure of speech . . . we do it actually.

In addition to designing and manufacturing Safety Company car lighting, generator and air conditioning equipment, Safety Company engineers and maintenance men have serviced our equipment in use for many of America's leading railroads.

This practical field experience—working on the railroad—is reflected on our design boards by progressive improvements to equipment. It is reflected in our manufacturing methods and processes. And it is reflected to you thru performance that adds up to long life and higher efficiency from Safety Company equipment.

SAFETY COMPANY PRODUCTS INCLUDE: Complete Air Conditioning Equipment; Bag Racks; Fans; Genemotors; Generators; Lighting Fixtures; Motor Alternators; Regulators; Switchboards.

THE SAFETY CAR HEATING AND LIGHTING COMPANY INC.

NEW YORK • CHICAGO • PHILADELPHIA • ST. LOUIS • BOSTON • SAN FRANCISCO • MONTREAL

Announcing the New..

JUSTRITE INSPECTORS' LANTERNS

At last! A better, safer light for car inspection work—an entirely new development by Justrite.

We are pleased to announce completion of the first production of the new Justrite Inspectors' Lanterns . . . lanterns carefully designed for inspection work . . . carefully constructed, of the best materials, to assure long and reliable service, plus efficiency and economy.

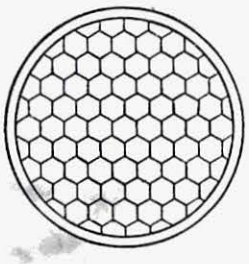
Two Types of Light from One Lantern

You can have two types of light with this revolutionary new Justrite "Double-Header" Inspectors' Lantern No. 2121 . . . to furnish the clear, wide spread beam required for accurate car inspection, one Light Housing is equipped with the newly developed Justrite Honeycomb Lens. It is especially designed to provide a uniform light over a wider area and throws a circle of even light that is 3 feet in diameter at a distance of 8 feet. There are no dark rings, no distortions — just fine, clear light. In the other Light Housing, a plain lens is used, providing a powerful spot beam for lighting distant objects. And, you can have both spread-beam and spot-beam together or separately — for each Light Housing has its own switch and bulb.

Light Can Be Focused at Any Angle

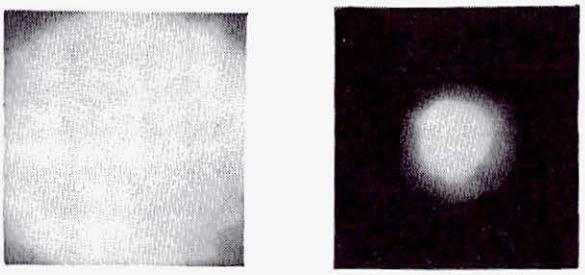
The body of the lantern tilts on the guard base so light can be directed at almost any angle. Light beam is easily focused to give pattern and intensity desired. Lenses are interchangeable. Standard bulbs and the regular 6 volt lantern battery are used — insuring long service and low operating cost.

Lantern is strongly constructed to take hard knocks — an important factor in railroad lanterns. It's made of durable steel, plated to resist corrosion. A space for two spare bulbs is provided in cover of battery case.



New Justrite Honeycomb Lens

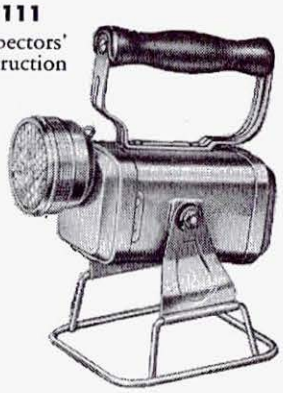
The completely new type of lens, designed specifically to provide the type of light needed by Inspectors. This lens is made of clear glass cast in the special "honeycomb" pattern which spreads the light with minimum absorption. Beam is evenly distributed over a wider area—there are no small spots or dark circles to throw confusing shadows on the work.



These unretouched illustrations show (at left) the wide, evenly-spread beam obtained with the new Justrite Honeycomb Lens, as contrasted with the small area "spot-beam" (right) from standard plain lens. Photographs are taken at same distance — light is focused on target 3 feet in diameter at 8 foot distance.

Single Head Model — No. 2111

This new single head Justrite Inspectors' Lantern, No. 2111, is the same construction as the "Double Header" but does not have the additional light housing for the plain lens. It's equipped with the Justrite Honeycomb Lens. It has the 2½" headpiece, space for spare bulbs, big wood grip handle for comfortable carrying.



Ask your supplier today for a demonstration of these new lanterns!

JUSTRITE MANUFACTURING COMPANY

2063 North Southport Avenue, Dept. D-1 • Chicago 14, Illinois

Air Brakes

helped write what they're reading

If railroad timetables copied the movies, and gave "screen credits" to everyone responsible for production, you would find the name "Westinghouse Air Brakes" prominent in the list of authors. For today's highspeed schedules could not be established or maintained without the positive train control afforded by Westinghouse Air Brakes.

There has never been a decade in the history of American railroads that has not brought improvement in service to the traveling and shipping public. Each new development has made more exacting demands on the brake equipment . . . and for three quarters of a century, a Westinghouse Air Brake has been available to meet each need.

Whatever your timetable shows tomorrow, you can depend on it that Westinghouse Air Brakes will help the railroads to deliver you, and your products at destination on time—and safely.

This is the hundredth anniversary of the birth of George Westinghouse. Few, if any, inventions have contributed more to the safety and welfare of mankind than his air brake. For 76 years, air brakes have been helping American Railroads in their continuous program of improving service.

Westinghouse Air Brake Co.

WILMERDING, PA.

To Direct popular attention to the remarkable achievements of American Railroads, this advertisement has been run in national media by Westinghouse Air Brake Co.

Railway Age

With which are incorporated the Railway Review, the Railway Gazette, and the Railway Age-Gazette. Name registered in U. S. Patent Office.

Vol. 121 October 19, 1946 No. 16

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA 23, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y., AND 105 W. ADAMS STREET, CHICAGO 3, ILL.

WASHINGTON 4, D. C.: 1081 NATIONAL PRESS BUILDING—CLEVELAND 13: TERMINAL TOWER—SEATTLE 1: 1033 HENRY BUILDING—SAN FRANCISCO 4: 800 MONTGOMERY STREET, ROOMS 805-806—LOS ANGELES 14: 530 WEST 6th STREET—DALLAS 4: 2909 MAPLE AVENUE.

SAMUEL O. DUNN, CHAIRMAN. HENRY LEE, PRESIDENT. ROY V. WRIGHT, VICE-PRESIDENT AND SECRETARY. F. H. THOMPSON, F. C. KOCH, R. E. THAYER, J. G. LYNE, H. E. McCANDLESS, S. WAYNE HICKEY, C. MILES BURPEE, VICE-PRESIDENTS. J. T. DeMOTT, TREASURER. RALPH E. WESTERMAN, ARTHUR J. McGINNIS, ASSISTANT TREASURERS.

SAMUEL O. DUNN, EDITOR. ROY V. WRIGHT, MANAGING EDITOR. JAMES G. LYNE, ASS'T TO EDITOR. NEAL D. HOWARD, WESTERN EDITOR. C. B. PECK, ALFRED G. OEHLER, E. L. WOODWARD, J. H. DUNN, H. C. WILCOX, CHARLES LAYNG, GEORGE E. BOYD, WALTER J. TAFT, M. H. DICK, W. H. SCHMIDT, Jr., C. L. COMBES, C. B. TAVENNER, CHARLES ROBINSON, MAURICE PEACOCK, FRED W. SMITH, SHERMAN DAVIS, FRED C. MILES, WALTER L. TURNER, Jr., G. J. WEIHOFEN, GEORGE JOHNSON. LIBRARIAN: EDITH C. STONE. EDITORIAL ASSISTANT: ELAINE C. FARRAR.

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.).

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR, $6.00; 2 YEARS, $10.00; FOREIGN COUNTRIES NOT INCLUDING DAILY EDITIONS: 1 YEAR, $8.00; 2 YEARS, 14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET, NEW YORK 7.

In This Issue

Page

Santa Fe Buys New Design Road Diesel **636**

American Locomotive - General Electric build 6,000-hp. locomotive powered by V-16 Turbosupercharged engine and electrical equipment with amplidyne control and dynamic braking.

Measuring Efficiency in Rail Testing **646**

C. K. Mentz, chief inspector, Sperry Rail Service, discusses results with detector cars operating at frequencies ranging from one to four times annually.

The Importance of Railway Police **651**

The first post-war meeting of the Protective Section, A. A. R., brings commendation for work done during the war and plans for the future.

EDITORIALS

What the Carloadings Show 633
Assimilating Progress 634
Modern Railway Police 635
Wheel Shop Work Being Centralized 635

GENERAL ARTICLES

Santa Fe Buys New Design Road Diesel 636
Railway Buying Continues at Fast Pace 642
Educate Public and Workers to Prevent Accidents 644
Measuring Efficiency in Rail Testing, by C. K. Mentz 646
C. & O. Lines Withdraw from A. A. R. 649
The Importance of Railway Police 651

GENERAL NEWS **652**

FREIGHT OPERATING STATISTICS **667**

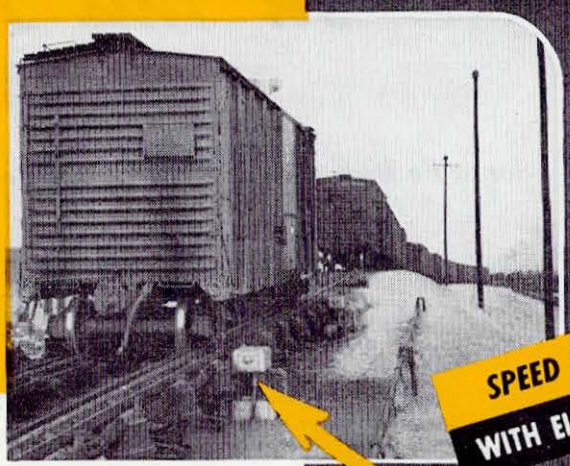
The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service.

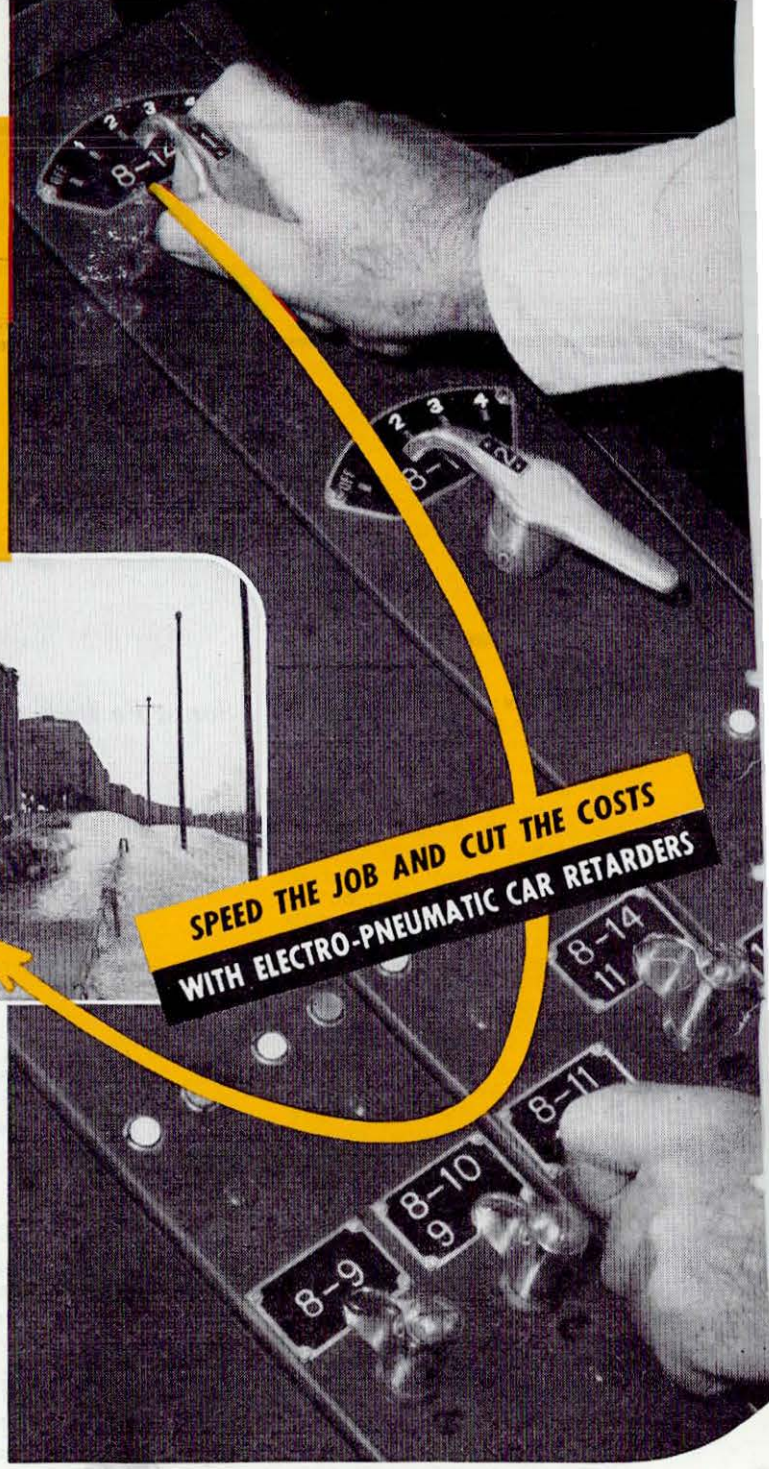
★

PRINTED IN U. S. A.

Complete Control of Retardation

Means Faster, Lower-cost Classification!





With "Union" Electro-pneumatic Car Retarders, four degrees of retarding pressure are at the operator's instant selection. He can apply any one of them, change from one to another, or release them completely—even while the car is in the retarder—and with immediate response, because the air pressure is electrically controlled. Each of those four different retarding pressures will be constantly uniform, because compressed air is the braking medium. Regardless of type of wheel or whether worn or not, full and exact pressures are exerted by retarder brake shoes against car wheels.

Such surety of retarding pressures, and the ability to use them with greater speed and facility, guarantee the classification of more cars in less time, and safer handling of cars and contents.

Important, too, is the fact that because of the unit construction of "Union" Electro-pneumatic Car Retarders, it is necessary to use only as many units as are actually needed for retardation at a given location. Here then, is freight car retardation tailor-fitted to its job, and then completely controlled to perform it effectively and efficiently. Only electro-pneumatic car retarders offer this flexibility of control and certainty of braking pressures. Only "Union" Car Retarders are Electro-penumatic. Write for bulletin 155.

UNION SWITCH & SIGNAL COMPANY

SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

The Week at a Glance

BUSY AIRLINES: In June domestic airlines handled over 10 per cent of the combined railroad and air passenger traffic (not including commuters), and in May they took in over 21 per cent of the combined railroad and air passenger revenues (again excluding commutation service). These significant figures appear in the latest "Monthly Comment" of the I. C. C. statistics bureau, a review of which appears this week in the news columns. Yet some of those who profess to speak for the airlines appear to be a bit perturbed by current railroad advertising—of which a sample from the New Haven is reproduced in this issue—because it dares to suggest that there are any reasons at all why people might find train travel preferable to planes.

●

SAFETY SESSION: Education of the public, of railroad employees, and of management in the promotion of safety—on the railroad, at grade crossings, and in train operation—is the surest means of attaining an improved railroad safety record. This was the theme of speeches at the recent Chicago meeting of the railroad section of the National Safety Council, reported herein. Further reduction of the railway employee accident rate, of collisions with highway vehicles at grade crossings, and of mishaps to trespassers on railroad property, particularly youngsters, were among the live topics about which there was considerable discussion.

●

CALL FOR CAUTION: Carloading figures serve a useful purpose in measuring business activity—and even in predicting railroad earnings (if any)—provided they are interpreted in the light of prevailing car utilization practices. But they can be very misleading as a measure of the freight service the railroads are performing, as is demonstrated in an editorial this week. This year, for example, loadings are currently running ahead of 1945, but load per car and length of haul have dropped off, so that the net result is fewer ton-miles.

●

SPERRY STANDARDS: By reducing to chart form the results of running detector cars over a railroad line once, twice, or four times a year, the Sperry Rail Service has developed a graphic way to indicate the efficiency of programs for testing rail and a basis for determining the frequency with which the tests should be made. An article by C. K. Mentz, on page 646, explains the significance of these charts and their use in setting up practical standards for this work.

●

LIMELIGHT ON POLICE: As railroad police, generally speaking, have to do their work without attracting much attention, either from the general public or even from railway officers and employees in departments that infrequently come into contact with them, it follows that their praises pretty often have been unsung. But the recent convention of the A. A. R. Protective Section, the subject of a report on page 651, afforded an opportunity for appropriate amends to be made. The meeting also gave those attending the usual opportunity to compare notes on plans for the future, the importance of which is emphasized by the increased crime rate accompanying the war's end.

●

CANADIAN RATE CASE: Up in Canada the railroads are asking for a 30 per cent increase in freight rates (except on coal and coke). In general, wage increases recently authorized or now under discussion are on the 10-cents-an-hour level. The news pages report that the western provinces are going to fight higher rates.

●

THE FACTS OF LIFE: The "emergency board" named to get the "facts" about the controversy between the Long Island and John L. Lewis' District 50 has turned in its report, the content of which is outlined in our news pages. Among other remarkable discoveries made by this board is the railroad's belief that there is some sort of rivalry between this miners' "catch-all" and the so-called standard brotherhoods. If the board had elected to look a little further, it is barely possible that it might have made another discovery—namely, that the railroad has not been entirely alone in harboring that suspicion.

●

NO RIVALRY!: District 50's motives are purely disinterested, of course; it very patriotically (the report says so) has accepted the terms of the national wage settlement of last spring—that is, 18½ cents an hour more (16 cents being retroactive to New Year's) with a "moratorium" on rule changes until next May. But more or less incidentally, as that agreement was being arrived at, another agreement was signed, setting forth some 174 "local" rule changes to be put into effect on the Long Island. A careful reading of the board's report fails to disclose any reference to an agreement preventing District 50's organizers from telling men on other roads that its threatened Long Island strike led to 174 rule changes the employees it represents had been unable to obtain until that militant union took up their cause. But that sort of thing could only happen, to be sure, if there were rivalry between the unions concerned.

●

NEWS NOTES: Official Territory won't originate as much freight, relatively, as before the war, says the I. C. C. statistics bureau. . . . Despite competing truckers' claims it doesn't charge enough, the Seaboard can stay in the "auxiliary to" trucking business if the commission accepts its examiners' recommendations. . . . "Controls" have been lifted from dining car prices. . . . Colonel Johnson doesn't like the government's lawyers' informal "assurances" they won't stir up more trouble over rate bureaus until the Georgia and Lincoln cases are wound up. . . . The Hudson & Manhattan has won a permanent fare increase from the I. C. C. . . . The Supreme Court is on the job again, and the Pullman acquisition and No. 28300 rate adjustment cases are on the docket.

SANTA FE'S NEW DIESEL: New developments in electrical equipment and new 2,000-hp. supercharged V-16 engines characterize the recently-completed 3-unit Diesel-electric locomotive delivered to the Santa Fe by American Locomotive-General Electric. It is described in an illustrated article this week. Features of the electrical system that have attracted special attention are the automatic power-plant regulating devices. Among them are an amplidyne excitation system and circuit protection with switch-type circuit breakers in place of fuses. The high power output of the Diesel engines is developed through the use of the G. E. constant pressure Turbosupercharger, an adaptation of an aircraft appliance perfected during the war.

●

MECHANICAL DETAILS: Other features of the new locomotive include panel type radiators, mounted overhead; a separate heat exchanger for cooling lubricating oil; and a single radiator fan driven through an eddy-current clutch which avoids the transmission of vibrations and permits a modulated control of fan speed. Air inside the engine compartment can be changed several times a minute, but dampers in the exhaust ducts facilitate temperature control.

●

LIVING ON THEIR FAT: Despite the failure of the Interstate Commerce Commission to make provision for revenues adequate to support such expenditures, the railroads continue to buy needed materials and supplies in substantial quantities, thus doing their part to keep industries going, with the full employment and general prosperity that result from such conditions. Data on purchases for July and the seven months are reviewed in this issue.

●

YOUNG LEAVES A. A. R.: Following directors' meetings this week, the three railroads making up the Chesapeake & Ohio group announced their intention to exercise their privilege of withdrawing from the Association of American Railroads. An article in this issue sums up the grounds named by Chairman Robert R. Young as the basis for this action, along with his suggestion that an organization should be formed representing the common interests of railroad labor, management and capital. He contends that railroad unions, in their own interest, will back up efforts to secure a reasonable return for capital put into railroads for the simple reason that they would find the only alternative—governmental control—less palatable than private management.

●

WHEEL SHOPS WHERE?: There isn't much argument about the economy of concentrating wheel and axle work in a large shop using production methods based on modern high-speed machines and appropriate material handling equipment, as compared with the old, small, local shops. An editorial observes that the trick is to locate the shop so that the cost of getting the parts to and from it doesn't cut too deeply into the potential savings.

EIGHT STEPS IN PROCESS CONTROL LEAD TO GREATER CABLE RELIABILITY

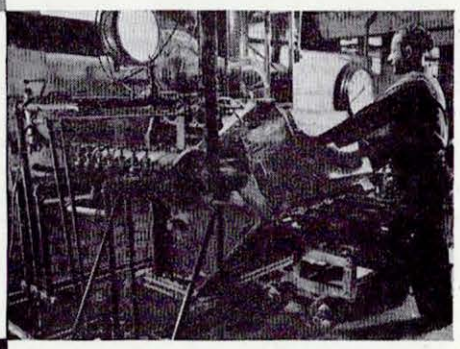
Before a single foot of Okonite cable is insulated by the strip process and vulcanized in its continuous metal mold, the seven controlled steps shown below are taken just to be sure the rubber compound has been properly processed. These and many other unusual manufacturing features make Okonite electrical wires and cables long-lived and maintenance-free. Research Publication 101, yours for the asking, tells the *whole* story. The Okonite Company, Passaic, N. J.

First, We Launder the Rubber — Multiple milling and washing rids the wild Up-river fine Para rubber of harmful impurities and water-soluble matter.

Next, It's Aged "In the Wood" — In dark rooms the rubber sheets are dried for weeks at room temperature to remove moisture without oxidation.

We Add "Balancing" Ingredients — Nearly 70 years of know-how determines the amount of selected chemicals that add "balance" to the rubber.

In the Automatic Banbury Mixer — the rubber and other compounding materials are mixed in accurate quantities and gently kneaded for a specified period.

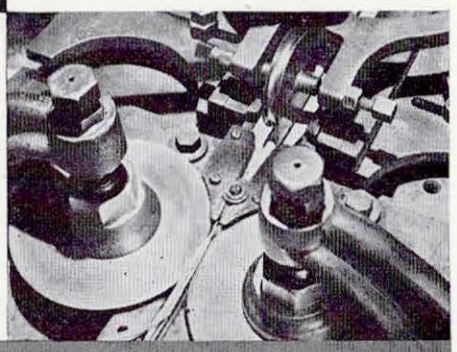


Obtaining Smooth Compound Texture — After fine mesh screening, the compound is squeezed into paper-thin sheets to insure uniform dispersion of particles.

Then Control Room Checks the Mix — On-the-spot vulcanizing of compound from each batch provides samples for check tests before calendering.

Foot-By-Foot Inspection Follows — Strips of compound slit from calendered sheets of uniform thickness are examined from end to end while being spliced.

And the Insulation Is Finally Applied — Okonite's strip process permits complete visual inspection as the insulation strips are folded about the conductor.



OKONITE insulated wires and cables

4650

RAILWAY AGE

What the Carloadings Show

Recent current totals of weekly freight carloadings—around 900,000 per week—do not appear very impressive when compared with those back in the heyday of the late 'Twenties when weekly carloadings in the fall regularly exceeded 1,100,000 and, on a few occasions, pushed upwards of 1,200,000. Conversely, recent loadings give a superficial impression of an increase in business over that of last year when the loadings totals were averaging upwards of 50,000 cars a week *less* than the current figures.

Fluctuating Factors

Actually, present loadings totals do not provide an accurate comparison of current traffic with either that of the late 'Twenties or of 1945. The accompanying table shows why. In 1929, for each car of revenue freight loaded, the railroads performed 8,468 ton-miles of transportation service. In 1944 the transportation service performed per car loaded was 16,984 ton-miles, almost exactly double that of 1929. Viewed in this light, at the "peak" of 1944, in October, the 916,000 cars loaded were the equivalent in transportation performance of approximately 1,832,000 carloads of the 1929 variety. Total freight service provided by the railroads (revenue ton-miles) was 65 per cent *greater* than in 1929, while cars loaded were 18 per cent *less*.

The increasing "spread" between ton-miles and cars loaded, which increase has now been arrested, arose from two causes, (1) an increase in the average haul per ton of freight from 317 miles in 1929 to 475 miles in 1944 and (2) from a war-time increase in tons per loaded car (e. g., from 27.6 tons in 1940 to 32.7 tons in 1944). Since 1944 both the average length of haul and the average tons per car have declined.

These declines explain the fact that current carloadings, which exceed those of a year ago, represent nevertheless a decline in transportation performance by the railroads. For example, carloadings in the September 28 week this year totaled 916,000—as compared to 833,000 in the comparable 1945 week. But 833,000 carloads at the average tons per car and length of haul which prevailed in 1945 would represent 13.5 billion ton-miles, while 916,000 carloads at the 1946 averages of load and haul are the equivalent of only 13.2 billion ton-miles. That is to say, while cars loaded have increased 10 per cent, actual transportation service performed on the railroads has, probably, shown a slight decrease. For the first seven months of the current year carloadings were 10 per cent lower than in the same period in 1945, while revenue ton-miles suffered a decrease of 24 per cent. The recent carloadings figures indicate that the decline in performance under 1945 is now much smaller than it was at the beginning of the year; indeed that the decline has practically disappeared altogether.

Caution Called For.

Carloadings are, of course, a widely-used figure because they become available so quickly—but their content both in revenue and in their call upon railroad performance has varied widely, as the table herewith indicates. Until some more stable relationship than that which now exists is established between loadings, ton-miles, and earnings per carload, it is clear that great caution must be exercised in drawing conclusions from the carloadings figures.

Variations in Transportation Service and Earnings per Carload

Year	Rev. Carloads	Rev. per Carload	Rev. Ton-Mi. per Carload	
				% of 1935
1929	52,827,925	$ 91.1	8,468	95
1935	31,504,134	88.5	8,952	100
1936	36,109,112	91.6	9,395	105
1937	37,670,464	89.7	9,573	107
1938	30,457,078	93.8	9,549	107
1939	33,911,498	95.9	9,832	110
1940	36,357,854	97.3	10,266	115
1941	42,352,127	105.0	11,217	125
1942	42,771,102	139.0	14,916	167
1943	42,439,951	159.8	17,132	191
1944	43,408,295	161.2	16,984	190
1945	41,901,051	155.9	16,244	181
1946*	22,422,963	140.1	14,427	161

* 7 months.

Assimilating Progress

Never was the atmosphere in the railway engineering and maintenance field so charged with anticipation of pending developments as at the present time. A quiet revolution is taking place in methods, equipment and standards, promising greater changes during the next few years than in any comparable period in history. What appears to be happening is that the efforts of many minds in many directions are achieving many of their different goals at approximately the same time.

Consequently, one of the biggest problems facing maintenance and engineering officers is to keep up with, evaluate and apply the procession of improvements now coming from all directions. Take, for instance, the situation in the development of ballast-handling and cleaning equipment. Several manufacturers have devised equipment which successfully mechanizes the removal of ballast from the tie cribs, and another is reported to have developed a machine for accomplishing an even more difficult job—that not only of removing the ballast from the cribs, but of cleaning it and returning it to the track as well. Doubtless, other developments in this direction are in process. As each

An Opportunity to Restore a Free Economy

The main trend in industrial relations is toward the destruction of a free economy by labor monopolies. At the same time democratic processes of government are being destroyed by labor dictators.

These trends are obscured by the paradox that outstanding leaders of labor constantly proclaim their devotion to free enterprise and their hatred of all monopolies, and the most ruthless labor bosses regularly reassert their faith in democracy! Most of these labor leaders are quite sincere. They simply do not understand that legalized labor monopolies are far more destructive of a free economy than all the business monopolies that ever tried to evade the anti-trust laws. They simply do not understand that a ruling class of labor bosses is just as undemocratic as a ruling class of feudal lords or business barons.

America, in common with the rest of the world, has been going through a social revolution. The new ruling class that has been emerging enjoys, like previous ruling classes, the delusion that it is working for the greatest good of the greatest number; and that it should gather ever-increasing power to dictate the course of events.

Another delusion common to every ruling class is that it has found formulas and programs whereby men can avoid the natural consequences of their acts. The present delusions of labor politicians include the following:

1. That the high cost of living can be met, or even reduced, by increasing wages.

2. That higher wages and shorter hours, without increased production, benefit labor.

3. That labor dictation, enforced by bigger and longer strikes, can increase the income of the wage earners, out of a reduced national income. . . .

In the long struggle of labor organizations to gain for the workers their proper influence in regulating the terms and conditions of employment, the unions were really fighting to maintain the essentials of a free economy and democratic government. But, that struggle has been won. Organized labor has so much political and economic power today that its leaders can exercise greater authority in government and in business than the representatives of any other single element of our society.

Labor fought for the right to organize and to bargain on equal terms with employers. But, bargaining on equal terms calls for the exercise of intelligence, patience and sweet reason. It seems much easier, when one has the power, to dictate the terms of a contract, instead of to argue and plead and compromise. But in a free economy and a democratic society no one should have the power to dictate. . . .

As labor's political power has grown, it has become plain that if both the Democratic and Republican parties are going to yield to organized labor on all issues upon which labor is united, we are going to have a class government no matter which party is in power. There is one major issue upon which labor is united; and on this issue—the maintenance of irresponsible labor power—it is supported by a coalition of Democratic and Republican labor politicians.

We have had ample evidence in the last year that unless there are legal limitations imposed on the right to strike, the constitutional, democratically-controlled government of the United States will become subservient to an unconstitutional, undemocratic, irresponsible government by organized labor. . . .

At the present time the Democratic Party is struggling to maintain itself in national power through holding the conservative Democratic vote in the South and Southwest and adding to it a radical labor vote in the great industrial centers. The Republican Party is striving to hold its conservative vote in the predominantly agricultural regions of the North, the East and the West, and to augment that strength by catering to the radical labor vote in the industrial centers.

It is inevitable that, through the bipartisan effort of labor politicians to elect either Republicans or Democrats in the industrial centers, we shall have again in the next Congress a Democratic-Republican coalition of captive labor agents. This should be offset by a Democratic-Republican coalition of free representatives of a free people.

This is a nation of working people. Farmers, small businessmen, and millions of unorganized workers enjoy the freedom of their labor. They are not seeking to control the economy or the government of the nation. They are not long led astray by economic bosses or political bosses who promise them security at the price of liberty.

There are millions in the ranks of organized labor who would rejoice to be free from their servitude to labor bosses over whom they have not the slightest control. The wage earners who are willing to be slaves of a labor dictatorship are a small minority of the entire population. But, through the political and economic power of the labor monopolists, aided by their coalition representatives in government, this small minority is steadily acquiring the power to dictate the terms and conditions under which the rest of the American people shall be permitted to live.

We should not wait until this organized minority has taken over the control of government with its private armies of pickets and sluggers. We should challenge the organization of a private tyranny before it grows so great and has captured so many key positions that it can terrorize and starve the nation into submission. I am not advocating the election of any Democrats or Republicans as partisans this fall. But I am advocating the election of free representatives of a free people under both Democratic and Republican banners, in order to provide a coalition that, in the next Congress, will be able to defeat the coalition of captive labor agents, who have been ruining the economy and undermining the government of the United States.

—From an address by Donald R. Richberg at the annual meeting at Atlantic City, N. J., of the National Petroleum Association.

RAILWAY AGE

What the Carloadings Show

Recent current totals of weekly freight carloadings—around 900,000 per week—do not appear very impressive when compared with those back in the heyday of the late 'Twenties when weekly carloadings in the fall regularly exceeded 1,100,000 and, on a few occasions, pushed upwards of 1,200,000. Conversely, recent loadings give a superficial impression of an increase in business over that of last year when the loadings totals were averaging upwards of 50,000 cars a week *less* than the current figures.

Fluctuating Factors

Actually, present loadings totals do not provide an accurate comparison of current traffic with either that of the late 'Twenties or of 1945. The accompanying table shows why. In 1929, for each car of revenue freight loaded, the railroads performed 8,468 ton-miles of transportation service. In 1944 the transportation service performed per car loaded was 16,984 ton-miles, almost exactly double that of 1929. Viewed in this light, at the "peak" of 1944, in October, the 916,000 cars loaded were the equivalent in transportation performance of approximately 1,832,000 carloads of the 1929 variety. Total freight service provided by the railroads (revenue ton-miles) was 65 per cent *greater* than in 1929, while cars loaded were 18 per cent *less*.

The increasing "spread" between ton-miles and cars loaded, which increase has now been arrested, arose from two causes, (1) an increase in the average haul per ton of freight from 317 miles in 1929 to 475 miles in 1944 and (2) from a war-time increase in tons per loaded car (e. g., from 27.6 tons in 1940 to 32.7 tons in 1944). Since 1944 both the average length of haul and the average tons per car have declined.

These declines explain the fact that current carloadings, which exceed those of a year ago, represent nevertheless a decline in transportation performance by the railroads. For example, carloadings in the September 28 week this year totaled 916.000—as compared to 833,000 in the comparable 1945 week. But 833,000 carloads at the average tons per car and length of haul which prevailed in 1945 would represent 13.5 billion ton-miles, while 916,000 carloads at the 1946 averages of load and haul are the equivalent of only 13.2 billion ton-miles. That is to say, while cars loaded have increased 10 per cent, actual transportation service performed on the railroads has, probably, shown a slight decrease. For the first seven months of the current year carloadings were 10 per cent lower than in the same period in 1945, while revenue ton-miles suffered a decrease of 24 per cent. The recent carloadings figures indicate that the decline in performance under 1945 is now much smaller than it was at the beginning of the year; indeed that the decline has practically disappeared altogether.

Caution Called For.

Carloadings are, of course, a widely-used figure because they become available so quickly—but their content both in revenue and in their call upon railroad performance has varied widely, as the table herewith indicates. Until some more stable relationship than that which now exists is established between loadings, ton-miles, and earnings per carload, it is clear that great caution must be exercised in drawing conclusions from the carloadings figures.

Variations in Transportation Service and Earnings per Carload

Year	Rev. Carloads	Rev. per Carload	Rev. Ton-Mi. per Carload	
				% of 1935
1929	52,827,925	$ 91.1	8,468	95
1935	31,504,134	88.5	8,952	100
1936	36,109,112	91.6	9,395	105
1937	37,670,464	89.7	9,573	107
1938	30,457,078	93.8	9,549	107
1939	33,911,498	95.9	9,832	110
1940	36,357,854	97.3	10,266	115
1941	42,352,127	105.0	11,217	125
1942	42,771,102	139.0	14,916	167
1943	42,439,951	159.8	17,132	191
1944	43,408,295	161.2	16,984	190
1945	41,901,051	155.9	16,244	181
1946*	22,422,963	140.1	14,427	161

* 7 months.

Assimilating Progress

Never was the atmosphere in the railway engineering and maintenance field so charged with anticipation of pending developments as at the present time. A quiet revolution is taking place in methods, equipment and standards, promising greater changes during the next few years than in any comparable period in history. What appears to be happening is that the efforts of many minds in many directions are achieving many of their different goals at approximately the same time.

Consequently, one of the biggest problems facing maintenance and engineering officers is to keep up with, evaluate and apply the procession of improvements now coming from all directions. Take, for instance, the situation in the development of ballast-handling and cleaning equipment. Several manufacturers have devised equipment which successfully mechanizes the removal of ballast from the tie cribs, and another is reported to have developed a machine for accomplishing an even more difficult job—that not only of removing the ballast from the cribs, but of cleaning it and returning it to the track as well. Doubtless, other developments in this direction are in process. As each

An Opportunity to Restore a Free Economy

The main trend in industrial relations is toward the destruction of a free economy by labor monopolies. At the same time democratic processes of government are being destroyed by labor dictators.

These trends are obscured by the paradox that outstanding leaders of labor constantly proclaim their devotion to free enterprise and their hatred of all monopolies, and the most ruthless labor bosses regularly reassert their faith in democracy! Most of these labor leaders are quite sincere. They simply do not understand that legalized labor monopolies are far more destructive of a free economy than all the business monopolies that ever tried to evade the anti-trust laws. They simply do not understand that a ruling class of labor bosses is just as undemocratic as a ruling class of feudal lords or business barons.

America, in common with the rest of the world, has been going through a social revolution. The new ruling class that has been emerging enjoys, like previous ruling classes, the delusion that it is working for the greatest good of the greatest number; and that it should gather ever-increasing power to dictate the course of events.

Another delusion common to every ruling class is that it has found formulas and programs whereby men can avoid the natural consequences of their acts. The present delusions of labor politicians include the following:

1. That the high cost of living can be met, or even reduced, by increasing wages.

2. That higher wages and shorter hours, without increased production, benefit labor.

3. That labor dictation, enforced by bigger and longer strikes, can increase the income of the wage earners, out of a reduced national income. . . .

In the long struggle of labor organizations to gain for the workers their proper influence in regulating the terms and conditions of employment, the unions were really fighting to maintain the essentials of a free economy and democratic government. But, that struggle has been won. Organized labor has so much political and economic power today that its leaders can exercise greater authority in government and in business than the representatives of any other single element of our society.

Labor fought for the right to organize and to bargain on equal terms with employers. But, bargaining on equal terms calls for the exercise of intelligence, patience and sweet reason. It seems much easier, when one has the power, to dictate the terms of a contract, instead of to argue and plead and compromise. But in a free economy and a democratic society no one should have the power to dictate. . . .

As labor's political power has grown, it has become plain that if both the Democratic and Republican parties are going to yield to organized labor on all issues upon which labor is united, we are going to have a class government no matter which party is in power. There is one major issue upon which labor is united; and on this issue—the maintenance of irresponsible labor power—it is supported by a coalition of Democratic and Republican labor politicians.

We have had ample evidence in the last year that unless there are legal limitations imposed on the right to strike, the constitutional, democratically-controlled government of the United States will become subservient to an unconstitutional, undemocratic, irresponsible government by organized labor. . . .

At the present time the Democratic Party is struggling to maintain itself in national power through holding the conservative Democratic vote in the South and Southwest and adding to it a radical labor vote in the great industrial centers. The Republican Party is striving to hold its conservative vote in the predominantly agricultural regions of the North, the East and the West, and to augment that strength by catering to the radical labor vote in the industrial centers.

It is inevitable that, through the bipartisan effort of labor politicians to elect either Republicans or Democrats in the industrial centers, we shall have again in the next Congress a Democratic-Republican coalition of captive labor agents. This should be offset by a Democratic-Republican coalition of free representatives of a free people.

This is a nation of working people. Farmers, small businessmen, and millions of unorganized workers enjoy the freedom of their labor. They are not seeking to control the economy or the government of the nation. They are not long led astray by economic bosses or political bosses who promise them security at the price of liberty.

There are millions in the ranks of organized labor who would rejoice to be free from their servitude to labor bosses over whom they have not the slightest control. The wage earners who are willing to be slaves of a labor dictatorship are a small minority of the entire population. But, through the political and economic power of the labor monopolists, aided by their coalition representatives in government, this small minority is steadily acquiring the power to dictate the terms and conditions under which the rest of the American people shall be permitted to live.

We should not wait until this organized minority has taken over the control of government with its private armies of pickets and sluggers. We should challenge the organization of a private tyranny before it grows so great and has captured so many key positions that it can terrorize and starve the nation into submission. I am not advocating the election of any Democrats or Republicans as partisans this fall. But I am advocating the election of free representatives of a free people under both Democratic and Republican banners, in order to provide a coalition that, in the next Congress, will be able to defeat the coalition of captive labor agents, who have been ruining the economy and undermining the government of the United States.

—From an address by Donald R. Richberg at the annual meeting at Atlantic City, N. J., of the National Petroleum Association.

of them is introduced a new responsibility is created for the maintenance man—he must examine the machine in detail, giving special attention to its effectiveness and performance in carrying out the particular task involved, and determining whether he is justified in recommending its purchase.

Other examples come readily to mind. One of them is the simultaneous development by various railroads and manufacturers of equipment designed to place the relatively new, but already established, practice of roadbed grouting on a more efficient basis. Others include such diverse developments as the use of asphalt-impregnated ballast to overcome certain track-maintenance difficulties; the growing application to various types of railway buildings of timber specially treated to resist fire; and improvements in tie-tamping equipment, actual and pending, as well as in many of the other types of machines used by the maintenance forces.

While endeavoring to keep abreast of these and similar developments, maintenance and engineering officers must also keep an eye on the many research projects being conducted by the Engineering division, Association of American Railroads, and by individual railroads, ready to take advantage of any findings that indicate the desirability of making changes in existing standards or practices.

There is, manifestly, no lack of technological progress in the railway maintenance field, and more can be expected; but the assimilation and application of the progress being made is another matter—one that should be claiming an increasing proportion of the time and attention of every maintenance and engineering officer.

Modern Railway Police

Since much of their work is necessarily done without publicity, railway police forces have not received the recognition they merit for improvements in their performance during the past several years. These improvements have paralleled and in many cases have surpassed those made by municipal police forces. Modern methods of crime detection and, even more important, crime prevention, prevail on United States railways.

At the annual meeting of the Protective Section, A. A. R., in Asheville, N. C., last week, the accomplishments of the railway police were openly proclaimed. Representatives of the United States Secret Service, of the Post Office Department, and of the Federal Bureau of Investigation paid tribute to the value of railway police work to their respective crime-detection agencies. It was evident that the closest cooperation exists between the railway police and these agencies and also that there is complete cooperation between the police departments of the various railways. Obviously such cooperation is of great value in the prevention and detection of crime in general and, in particular, of those crimes involving railroad property and service.

The part which education plays in the prevention of crime, and particularly juvenile crime, which is responsible for the majority of trespassing accidents on the railways, was indicated by the showing of a technicolor film and the remarks of the various railway police chiefs as to campaigns which are in progress all over the country to acquaint juveniles with the dangers of trespassing on railway property. A few decades ago the activity of a railway policeman at speech-making was usually limited to profane imprecations directed to hoboes and youthful trespassers. Currently, a number of the railway police departments are conducting courses in public speaking so that their members may be able to address various groups, particularly children, in the interests of crime prevention.

The aftermath of war has produced an increase in crime of all sorts and the railways have not been immune to the effects of this increase. The railway police are taking energetic measures to combat this situation; and their efforts will be much more effective if all railway officers and employees appreciate their problems and do their utmost to cooperate with them in the performance of their duties.

Wheel Shop Work Being Centralized

The difficulty with most of the work involved in maintaining railway equipment is that the volume of individual parts at any one repair shop is rarely sufficient to justify the cost of specialized machinery and methods required for most efficient operation and, hence, minimum unit costs. Car wheel and axle repairs are an exception and wheel shops, with many repetitive operations to perform, have long been recognized as well adapted to modern production methods.

There is no doubt that additional economies can be effected by still further concentration of wheel and axle work, as happened early this year when a large eastern railroad constructed a single new wheel shop to do the work formerly handled at ten individual small shops. The new shop was laid out for direct straight-line flow of materials. New high-production machinery and tools were installed and particular attention was paid to material-handling equipment which would enable a modern machine to meet a low average floor-to-floor production time that would be in keeping with the low machining time inherent in carbide tools.

The location of a centralized wheel shop, where it serves an entire railway system, or regional subdivision, is a matter of moment because of the cost of shipping wheels to and from outlying points. In the case of a large midwestern carrier the strategic point chosen was the largest freight-car repair and interchange point on the railroad where 40 per cent of the wheel and axle output will be used locally, leaving only 60 per cent requiring transportation to outside points.

The objectives of wheel shop centralization are, in general, the same as those of the centralization of any shop operations involving machine-tool equipment—namely, that of reducing unit costs by efficient machinery and efficient handling equipment. In the case of wheel shops, however, there is an added objective; that of concentrating wheel and axle work under the scrutiny of experienced shop inspectors to make sure that the quality of finished work conforms to the standards set by the Wheel and Axle Manual.

Santa Fe Buys New Design Road Diesel

American Locomotive-General Electric build 6,000-hp. locomotive powered by V-16 Turbosupercharged engine and electrical equipment with amplidyne control and dynamic braking

WITH the delivery of a 6,000-hp. three-unit Diesel-electric locomotive to the Atchison, Topeka & Santa Fe, the American Locomotive Company and General Electric Company introduced a new design of road locomotive designed for freight or passenger service. This locomotive incorporates a new 2,000-hp. Turbosupercharged Diesel engine of the V-16 type and a number of new developments in electrical equipment. Each of the three units—two A units and one B unit—has an over-all length of 66 ft. 2 in. with a unit wheel base of 49 ft. 8 in. The total weight of the A unit is 306,000 lb. supported on six axles and the B unit weighs 300,000 lb., likewise supported on six axles. Each unit has capacity for 230 gal. of lubricating oil, 1,200 gal. of fuel oil and 1,000 gal. of water for steam heating. Each unit has one power plant, a steam generator and, except for operator's cab on A units, are identical in arrangement of equipment.

The Diesel engine is a new V-type Alco design introduced with this locomotive. It is known as the Series 244 and has 16 cylinders of 9-in. bore and 10½-in. stroke. The engine was designed for the application of the General Electric supercharger, described elsewhere in this article.

The engine is the four-cycle type with two intake and two exhaust valves in each cylinder head. It has unit fuel injection, water-cooled cylinder liners and heads, trunk type oil-cooled pistons, forged-steel connecting rods, a nine-bearing forged crank shaft and a welded base and cylinder block.

Fuel is fed from the main supply to the injection pumps by an electric-motor-driven transfer pump located in the engine compartment. The supply pipe is filter-equipped, with a waste-packed filter on the suction side and a felt filter on the discharge side.

A gear-type pump supplies full pressure lubrication to all parts of the engine. The lubricating oil reservoir, of 230 gal. capacity, is located in the engine base. The lubrication system is filter-equipped and the oil is cooled by a single-pass type cooler. The engine is automatically stopped in case the lubrication system fails to operate properly.

Engine cooling is effected by an engine-driven centrifugal pump which circulates the water through the engine, radiators and lubricating oil cooler. Panel-type radiators are mounted in the roof over the rear end of the engine, and a cooling fan mechanically driven through an electric eddy-current clutch from the main engine draws air through the radiator and exhausts it through a screened opening in the roof. The fan clutch and automatic radiator shutters control the air flow through the radiators and maintain the proper engine operating temperature.

Engine speed is governed by a G. E. power-plant regulator, the setting of which is controlled by the engineman's

throttle. A safety trip controls excess engine speed.

The engine is started by means of the main generator acting as a motor using current from storage batteries.

The Turbosupercharger

The high output of the new Alco engine is made possible by the higher supercharging pressure used in the constant-pressure Turbosupercharging system. The Turbosupercharger is a modification of the aircraft type developed by General Electric for the Army Air Forces.

The Turbosupercharger is simple, light in weight, and consists of but a single unit operating from one exhaust manifold connecting all cylinders. The unit itself weighs 1,400 lb.

With a Turbosupercharger of this type the potential output of a normally aspirated engine can be increased 85 to 90 per cent.

With the Turbosupercharger the cylinders are not only thoroughly scavenged but cylinders and the exhaust valves are cooled by the air stream, maintaining normal head and valve temperatures.

Electric Transmission

The electric transmission system, consists of the main generator, an amplidyne exciter, and four traction motors, one mounted on each of the four driving axles. Two gear-driven auxiliary generators are also included; one to supply power for lights, battery charging, control, and all other auxiliary load; the other to supply power for motor-driven traction-motor blowers.

The 10-pole generator is a newly designed machine and is built with a single, low-voltage, shunt-exciting winding for amplidyne excitation. Designed specifically to operate with the new high-speed Alco Diesel engine, it is rated 2,000 hp. to 1,000 r. p. m. This is the first time a generator for locomotive service has been rated at this speed and capacity. Weighing only 10,000 lb., it develops 31 per cent more power per pound of weight than the last previous model.

The traction motors are GE-726 motors which have high continuous and short-time tractive ratings. Optional gearing ranges from 65 to 120 m. p. h. The most unusual feature of the electric transmission system is the amplidyne exciter. Mounted on the generator and connected into the shunt field winding of the generator, this device functions basically as an exciter, increasing or decreasing generator output by increasing or decreasing current supplied to the field winding.

As an exciter, the amplidyne can utilize exceptionally low current from the control circuit and amplify it sufficiently to obtain a volume of excitation current large enough to modify generator output promptly.

By harnessing an internal short-circuit and putting it to work, the amplidyne can magnify a control current as much as 10,000 to 1 and can reach full required output in one-tenth of a second or less. As a result of these two characteristics, the amplidyne makes possible the use of low control current with correspondingly small, compact, fast-acting control devices.

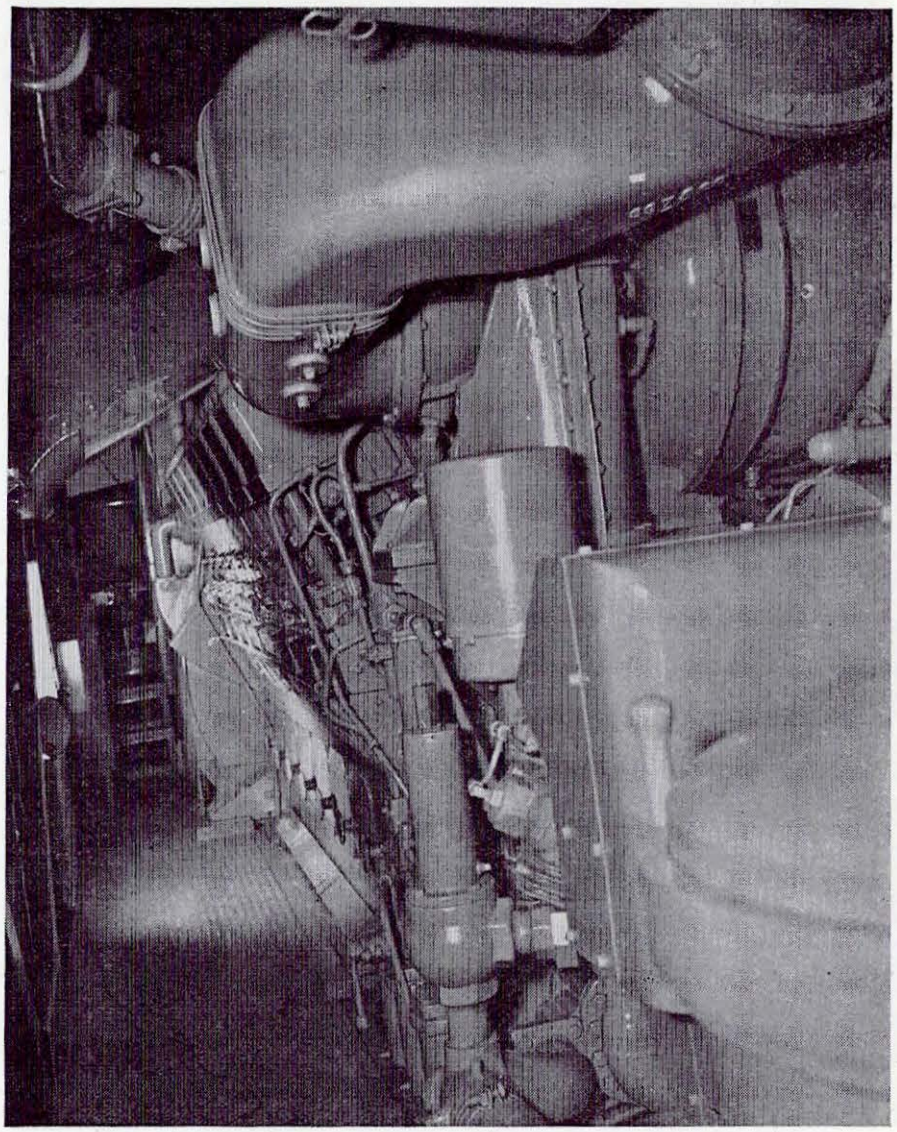
Electric Control System

The control system of the locomotive has been organized into three separate compartments—the engineman's control station, the contactor compartment, and the engine control panel. By so grouping the various electric equipment, it has been possible greatly to simplify the wiring, keeping cable runs to minimum lengths.

Easy identification and accessability are stressed. Every piece in the three control centers is identified by an individual nameplate. Through use of multi-point connection plugs, whole assemblies can be connected and disconnected easily.

It has also been possible to build "packaged" units of equipment, which can be given maximum protection consistent with their function. In this way, entire assemblies can be easily removed from the locomotive for repair and a replacement unit installed, thus enabling the locomotive to go back into revenue service. The control relays in the contactor compartment can be handled as one unit in this manner, as can the entire engine-room control panel, and other components of the control system.

In laying out the engineman's control station, every effort has been made to

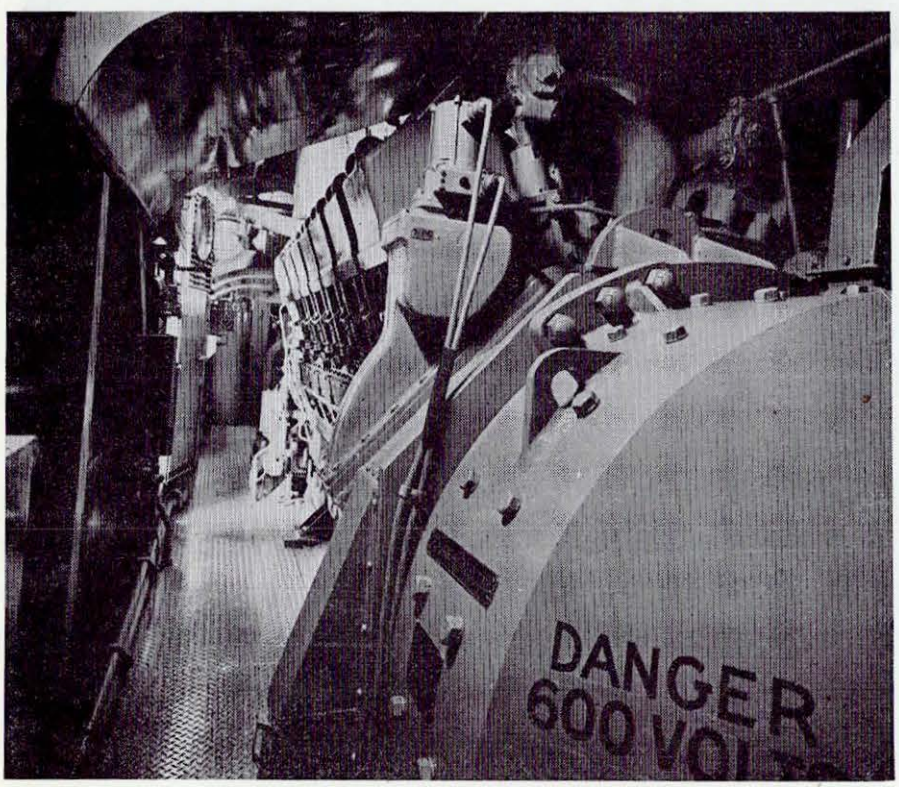


The General Electric Turbosupercharger may be seen in the upper part of this photograph

Visibility from the engineman's position covers a wide range. The controls are complete and conveniently arranged

increase the efficiency with which the engineman can work and thereby permit safer locomotive operation on tighter schedules. Through the use of the amplidyne exciter and small relays—plus modern compact control devices—it has been possible to locate controls for maximum accessibility in accordance with the frequency and importance of their use. Throttle, reverser, and selector handles are all within easy reach. The headlight switch has been placed conveniently on the control stand. Engine-temperature and oil-pressure warning lights are prominently located so as to be visible to both engineman and fireman.

Special attention has been given to the lighting of the engineman's control station. Taking a lesson from the Army Air Forces, engineers have installed large size scales on load indicator, speed meter, and air-brake gauges, and have illuminated the entire panel with ultra-violet ("black") light. The level of illumination is also adjustable to suit individual requirements. As a result, the problem of "dark adaptation"—which results from looking into the dark night, glancing down at glaring indicator lights on the dashboard, and then trying once again to adjust the eyes to external darkness—has been eliminated.



Engine room view looking at one of the Alco V-16 engines from the generator end

Contactor Compartment

The contactor compartment, is located immediately behind the engineman's cab and forms the forward wall of the engine room. In it are located the circuit breakers, resistors, and other devices which control the main power supply. No device in the compartment is located behind another and all are arranged for maximum accessibility, with those parts most subject to wear, located where they can be most easily reached.

Application of the amplidyne excitation system permits the use of small type operating relays which are located inside a dust-tight removable box. This eliminates, to a large degree, failures due to dirt, and makes for longer relay life. The entire assembly is fitted with quickly removable plugs and the box, with relays, can easily be lifted out for repair or unit exchange.

All heat-producing elements of the control system and particularly the field shunt resistors are located at the rear of the compartment and are partitioned off to prevent heat reaching other equipment. Heat given off by these devices is exhausted into the engine room where it is removed by the engine-room ventilating system.

Another improvement in the control system is the complete elimination of fuses. All control and auxiliary power circuits are protected by new switch-type, trip-free, indicating circuit breakers. Because the position of the circuit breaker toggle indicates at a glance the position of the breaker, identification of a faulty circuit is made easy. In the event of a transient fault, the breaker can be reclosed manually without interrupting service.

Engine Control Panel

Mounted on a side wall of the engine room, the engine control panel contains all equipment necessary to start and

regulate the operation of the Diesel engine. Like the voltage regulator, motor cut-out switch, and the operating relays, the entire panel can be removed as a unit for replacement and repair.

The engine control switch, located in this panel, is used to stop, start, and bring the Diesel engine "on the line." By means of this switch the engine can be placed in service in progressive steps. This is particularly advantageous after a major replacement of engine parts, because by locally limiting maximum engine speed, the engine can be broken in gradually. Also, if for any other operating reason it is desired to confine operation of a particular engine to a condition of reduced speed and reduced load, the engine control switch can be left in one of the "step" positions below the "run" position.

In this way, a new engine can be broken in during operation of a multiple-unit locomotive with no risk of damage to the power plant by full-speed operation. Up to the limit imposed by the engine control switch, the engineman can use the power of such an engine to gain additional tractive force for starting or to overcome a grade condition. And when the engine has been broken in, the control switch can be turned to the "run" position, and control at all speeds reverts to the engineman at the control position.

Power-Plant Regulating System

The power-plant regulating system is used automatically to govern the operation of the power plant to meet—insofar as it is safe and possible—the performance called for by the engineman. It holds constant any preset engine speed, limits engine torque, and adjusts the generator demand to suit the engine's ability to deliver power at any moment.

Its advantages are its great stability, high responsiveness, ready adaptability to remote control, and its incorporation of engine protective features not normally found in other types of governors.

The system consists of a tachometer generator and the governor, both mounted on the Diesel engine but connected to each other only by electric cable. The tachometer generator is driven by the Diesel engine and hence its electric output is directly proportional to the speed of the engine. The governor, energized by the tachometer generator, transforms the electrical impulse from the tachometer generator into mechanical action to control the fuel racks of the Diesel engine. Through the amplidyne exciter, it also controls generator demand.

Stability of this system in maintaining constant engine speed is obtained by built-in, rapid anti-hunting features which include momentary reversal of excitation whenever necessary to control speed. Because it is sensitive to changes in excitation, the governor can actually anticipate a change in generator demand and adjust the fuel rack setting to compensate for the change before it occurs.

On the other hand, should the engine for any reason become unable to deliver full power, the governor automatically unloads the generator until the engine is again operating at rated speed. This ability to maintain constant engine speed despite fluctuations in load and engine ability should greatly increase the life of the engine and its parts. Proper circulation of lubricating oil and cooling water are automatically maintained, and as a result operating temperatures and clearances between moving parts are held within the designed limits.

Because control of the governor is by electric circuits to a rheostat on the throttle handle rather than by mechanical linkage to the throttle handle, manual and automatic controls may be located any desired distance from the prime mover, and multiple-unit operation is readily accomplished. Lack of mechanical parts likewise means fewer parts subject to wear and hence a longer wearing, more accurate system.

Built-in safety features include protection against engine overspeeding, low lubricating-oil pressure, low regulator-oil pressure, high engine temperature, and electrical ground. The system is so designed that it always "fails safe"; that is, in case of any trouble, the fuel into the engine is automatically shut off and the exciter circuits opened.

Dynamic Braking

The dynamic braking is accomplished by reversing the action of the traction motors, that is, using them as generators and dissipating the electrical energy in a loading resistor. The circuit for the braking operation is set up by a braking switch which connects the motor armatures of a cab to the loading resistor. The motor fields of each cab are connected across the traction generator and control of the amount of braking is accomplished by varying the excitation on the generator. This is accurately regulated through the use of the amplidyne excitation system.

The braking resistor is built into a hatch section of the engine-room roof and located directly above the engine. The resistor consists of two banks of resistor frames at either end of a double-fan motor blower unit.

Each resistor frame is constructed of fiber material taking the form of a large honeycomb frame approximately 20 in. square by 4 in. wide and housing within it several convolutions of ribbon type resistor element. Several of these resistor units are located at either end of the blower as honeycomb frames are assembled in a beehive so that the cooling air is blown through them in series.

The blower unit consists of a specially designed double-shaft-extension motor with an axial flow type fan mounted directly on each end. The power leads of this motor are connected across a portion of the load resistor so that the voltage imposed upon it and, therefore, the blower speed and amount of cooling air delivered are directly proportional to the load being applied to the resistor. Its functioning is, therefore, automatic and its performance inherently proportioned to requirements but without the use of any control devices.

At either end of the resistor housing an elbow with turning vanes directs the heated air out through the locomotive roof. To protect against excessive amounts of rain, snow, or cinders falling into these air outlets when the electric brake is not in use, the roof openings are provided with vane type shutters. These are opened by the pressure of the cooling air and closed by gravity.

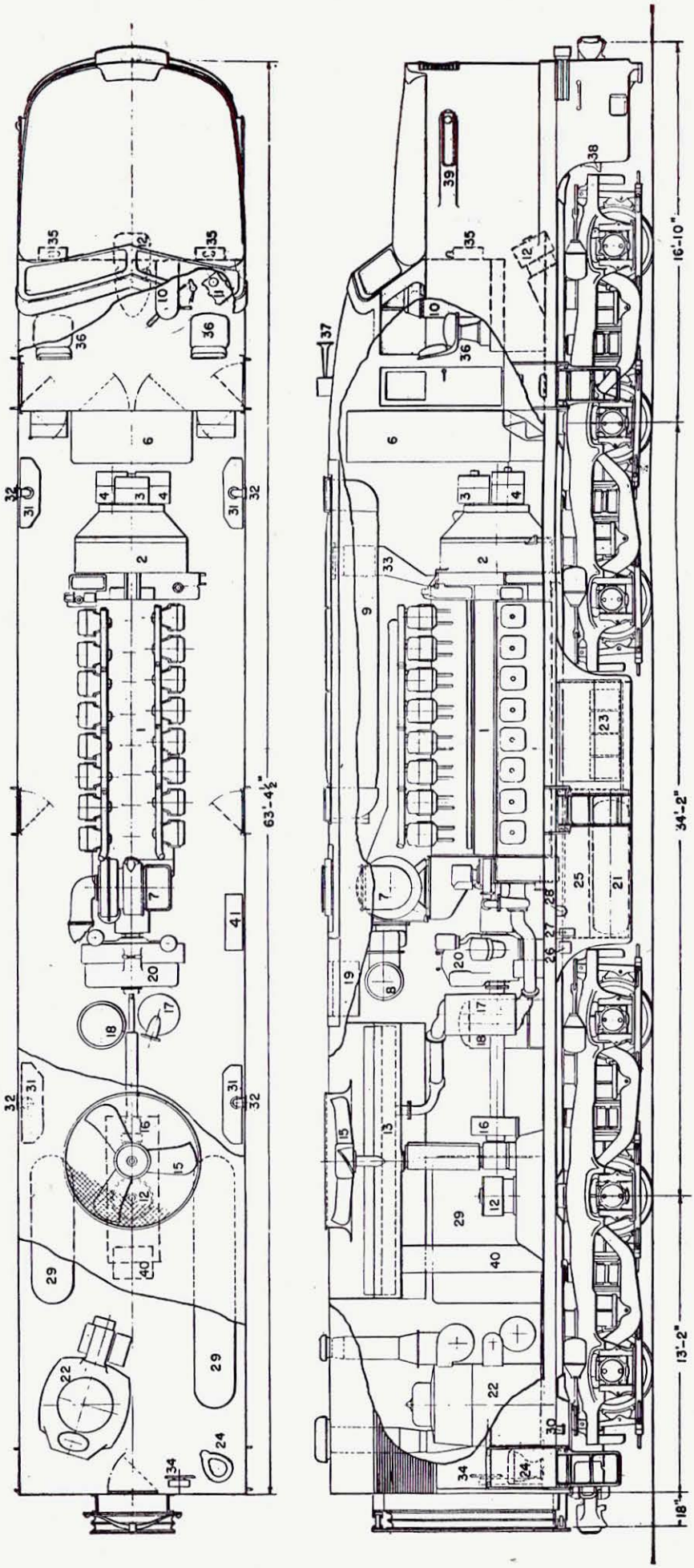
In addition to the use of this resistor for dynamic braking load, it is now being used also as a loading resistor for braking in an overhauled engine. In this case by means of a few simple special connections in the power circuits the traction generator instead of the traction motors is connected across the resistor. Once the connections are made the engine may be throttled up as in normal locomotive operation but the entire output of the generator is dissipated through the resistor. Full loading of a 2,000-hp. unit is permissible on this equipment.

The new panel type radiator, mounted in an overhead compartment, on each side of the locomotive, is unusually simple. One panel type radiator replaced 18 of the original sectional type radiators. The result is a considerable saving in weight, and the radiators can be removed or applied from the side opening by first removing the shutters.

Cooling System

The introduction of a heat exchanger for cooling lubricating oil permits the radiators to be used for cooling water only and eliminates high pressure in the radiator system. It also gives better control of lubricating-oil temperature in cold weather, as the sectional-type, air-blown lubricating-oil cooler offers many problems in winter when the lubricating oil is at a low temperature.

A single radiator fan is driven through a right-angle gear box and an eddy-current clutch. The eddy-current clutch is located between the gear box and the Diesel engine drive shaft coupling. This makes a simple and rugged combination for the fan drive. The eddy-current clutch provides a damper in the drive



system against shocks or vibrations and permits a modulated fan speed control that has not been equalled, even with direct motor drive.

The fan speed control and thermostat-actuated radiator shutter control are synchronized so that when the shutters are closed, the fan speed is automatically cut off. When desired, the fan can be stopped entirely and independently of the Diesel engine. This method reduces the temperature control to a single variable—the temperature of the jacket water. The shutters can be closed manually to protect the cooling system in standby periods.

Careful study was made of engine-room ventilation, and its effect on the temperature inside the engine room with the Diesel engine operating at full speed. All of the air entering the cab was filtered. The arrangement of the filters is simple and the filter panels can be removed for cleaning in a very few minutes. If necessary, in winter operation deflectors can be applied inside the engine room to the filter housing.

Generator ventilating air is blown out of the cab partly through the floor and partly through a duct leading to the roof. This eliminates a large amount of heat formerly released in the engine room. Dampers are provided in the exhaust ducts so that this warm air can be recirculated in the engine compartment during cold weather. Normally, when all of the equipment is in use, air inside the compartment is changed several times a minute.

Underframe and Superstructure

The underframe is a steel-plate structure, fabricated by means of electric welding. The truck center plates are cast steel welded to the underframe and equipped with hardened-steel liners. Each end of each unit is equipped with Type E couplers and National Type M-380 rubber draft gear. The couplers are housed in a cast-steel pocket and the uncoupling device is operated from the side. The uncoupling device at the front end is concealed.

The cab side frames are the truss type and the cab structure and bulkheads are of welded steel construction. The side walls of the engine compartment are of metal-sheathed wood-ply panels resting in rubber and mounted on the frame by the use of metal battens.

The nose compartment of the A unit is a strong welded steel structure within which is housed the front truck motor blower and air brake equipment. The operating cab at the front end of this

Sectional elevation and plan of Alco-G. E. Diesel-electric locomotive—A unit

unit has the floor elevated above the floor level of the engine compartment and the walls and roof of the operating compartment are lined and insulated. The operating compartment is fitted with two upholstered adjustable seats.

The front cab windows are fixed sash and the side windows of the operating compartment are the combination type with controlled drop sections and pivoted front sections. Both front cab windows are equipped with windshield wipers, defrosters and sun visors. All windows are fitted with safety glass and the fixed sash are rubber mounted in metal frames. The engine compartment has two side windows at the rear.

Exterior doors are installed at each side of the operating compartment and at each side of the engine compartment. The former have drop sash and the latter fixed sash. All exterior doors may be locked from the inside.

The engine room is ventilated with filter equipped openings in the side walls.

The passageway between units is fitted with standard vestibule diaphragm and is equipped with lighting on the engine-room circuit.

Trucks

Each unit has two six-wheel swivel, swing-motion, pedestal-type motor trucks. The truck frames are cast steel, spring-supported on two equalizers at each side with triple coil springs between frame and equalizers. Double elliptic springs are used between spring planks and bolsters. The center plates are equipped with safety locks. The rolled-steel wheels are 40-in. diameter and the axles operate in Timken roller bearings. The end axles of each truck are driving axles with axle-supported motors having spring nose suspension from the truck transom. The wheel and axle assemblies are removable with the motors. Motor ventilation from the blowers in the cab is accomplished by flexible connections. Hardened liners are used on pedestal jaws and center plates. Plain steel side bearings with swivel limiting devices are used.

The trucks are equipped with clasp brakes on all wheels. There are two brake shoes per wheel and the braking system is operated by four 11-in. by 10-in. brake cylinders on each truck. A hand brake, connected to one truck, is operated from the engine compartment.

At the engineman's position on the right side of the cab there is located: throttle, reverser and selector handles; circuit-breaker type switches for generator field, fuel-transfer-pump control circuit, and train control; classification, gauge and headlight switches; windshield wiper and defroster controls; signal lights for high engine-water temperatures, low lubricating-oil pressure, boiler flame cut out and train control. Other controls are for air brake, whistle, bell ringer and sanders. The gauge panel contains speedometer, load meter, air gauges, signal lights for wheel slip, engine overspeed and dynamic brake warning. On the left side of the cab are controls for cab heater, defroster and wiper and dashlight.

In the engine room is a control panel on the cab wall containing switches for engine starting and control, radiator fan control, fuel transfer pump and panel light, engine tachometer and gauges for fuel and oil pressure, intake manifold air pressure, lubricating-oil pressure to supercharger; engine water temperature indicator; signal lights for high engine-water temperature; low lubricating oil pressure ground relay, traction-motor blowers, crank case exhauster and boiler flame cutout. This control panel also contains a group of control relays and pressure and temperature control switches. Adjacent to the panel is the battery disconnecting switch.

A single fuel tank of 1,200 gal. capacity is located beneath the cab, between the trucks. There are two filling connections and two vents, fire-protection screens, fuel-level indicators and emergency cut-out valves controlled by handles near the filling connections. Provision is made for cleaning and draining the fuel-oil tank.

There is a 90-gal. engine-water tank built integral with the engine hatch cover with filling connections on the right side of the locomotive and on the roof.

Steam for train heating is supplied by a Vapor-Clarkson steam generator located at the rear end of the engine compartment of each unit, having a capacity of 3,000 lb. of steam per hour at 225 to 275 lb. pressure. Water tanks of 1,000 gal. capacity are located at the sides of the engine compartment with filling connections to the outside. The water tanks are supplied with level indicators.

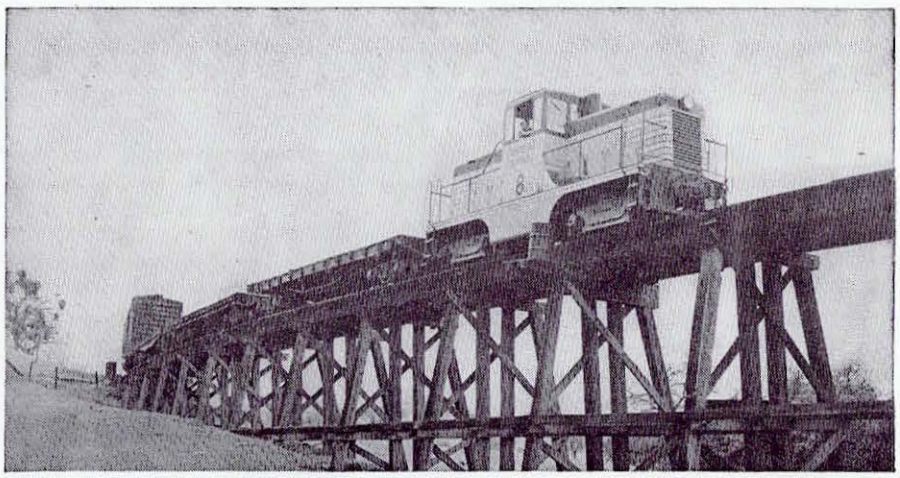
The brake schedule is Westinghouse 24-RL with automatic and straight air brakes on all wheels. The deadman safety control is operated by a foot pedal. Air for the brake system is supplied by one two-stage, three-cylinder, air-cooled compressor, having 306 cu. ft. per min. capacity at full engine speed, direct driven from the main engine through flexible couplings. The compressor is equipped with an intercooler and aftercoolers between both the compressor and first main reservoir and first and second main reservoirs. These reservoirs, suspended beneath the underframe, have a combined capacity of 35,770 cu. in.

Other locomotive equipment consists of warning signals, fire extinguishers, sanders with control incorporated in the automatic brake valve and arranged for electric multiple-unit operation, and sanitary fixtures at the rear end of the engine compartment.

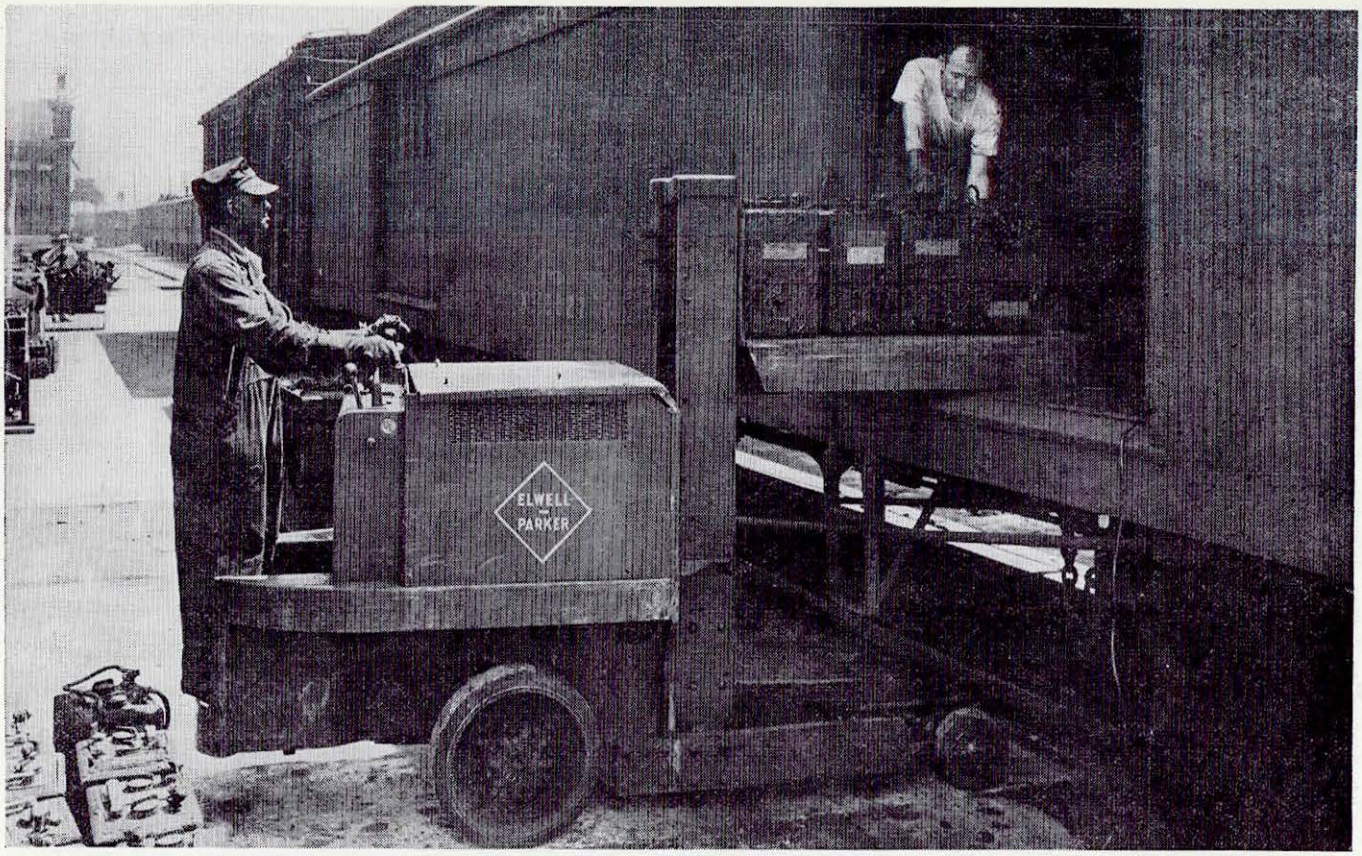
General Characteristics of Alco-G. E. 2,000-Hp. Diesel-Electric Locomotive

Wheel arrangement	A-1-A A-1-A
Diesel engine (one per unit) hp.	2,000
Over-all dimensions, ft.-in.:	
Height (roof)	14-0
Height (maximum)	14-11
Width inside cab sheets	9-9⅛
Width (maximum)	10-6½
Length over-all (A unit)	66-2
Length inside knuckles (A unit)	65-8
Length over-all (B unit)	64-0
Length inside knuckles (B unit)	63-6
Length over knuckles, three units	195-4
Wheel bases, ft.-in.:	
Truck, rigid	15-6
Each A or B unit	49-8
Total locomotive (three units)	176-8
Truck wheels, diameter, in.	40
Maximum track curvature, deg.	21
Weights, lb.:	
On drivers, A unit	204,000
Total locomotive, A unit	306,000
On drivers, B unit	200,000
Total locomotive, B unit	300,000
Per axle, maximum, A unit	51,000
Supplies:	
Fuel oil, each unit, gal.	1,200
Lubricating oil, each engine, gal.	230
Engine-cooling water, each engine, gal.	300
Steam-heat water, each unit, gal.	1,000
Sand, each unit, cu. ft.	22

* * *



New Alco-G. E. Diesel-electric in service on the Amador Central



Modern mechanical equipment plus improved methods of handling are playing an important part in speeding the delivery of railway materials and supplies from concentration points to line of road stores and shops

Railway Buying Continues at Fast Pace

Class I roads spent $136,115,000 in July for materials, supplies and fuel—Expenditures for crossties, $8,047,000, were greater than for any previous month during 1946—Rail shows slight gain

RAILWAY purchases of materials, supplies and fuel (excluding equipment) by Class I railroads continued heavy during the month of July and aggregated $136,115,000, or 4 per cent more than for the same month of 1945, according to estimates prepared by *Railway Age* and based upon individual reports received from 76 carriers.

July purchases also exceeded the $134,355,000 spent for materials, supplies and fuel during the same month of 1944 by 1 per cent, topped purchases during the seventh month of 1943 by 15 per cent, were 34 per cent greater than the $101,276,000 expended for similar materials, supplies and fuel during July, 1942, and surpassed the $99,555,000 spent for the same purpose during the comparable month of 1941 by 37 per cent.

Expenditures during July were 3 per cent greater than the $132,107,000 spent for similar materials and supplies during January, topped February purchases by 21 per cent and were 3 per cent, 17 per cent, 18 per cent and 13 per cent greater, respectively, than similar purchases during March, April, May and June, 1946.

Purchases of materials and supplies (excluding fuel) from manufacturers amounted to $84,893,000, an expenditure of 1 per cent more than for the comparable month of 1945, when they totaled $83,978,000. July purchases also exceeded the $80,424,000 spent for the same purpose during January by 6 per cent, topped the February total by 36 per cent, and were 9 per cent greater than the $78,049,000 spent for similar materials and supplies during March, but sagged 2 per cent below April purchases, which amounted to $86,863,000. July expenditures approximated May purchases, but were 6 per cent more than the $80,027,000 spent for similar materials and supplies during June.

Miscellaneous Materials Gain

High-volume buying of miscellaneous materials and supplies (excluding crossties, rail and fuel) regularly required for the general maintenance of equipment and fixed property continued, with July expenditures amounting to $71,744,000, compared with $71,211,000 during July, 1945. Moreover, July purchases were 3 per cent more than the $69,808,000 expended for this purpose during January; they exceeded the February total by 29 per cent, were fully 7 per cent greater than the $67,026,000 spent for similar materials and supplies during March, but dropped 3 per cent below the year's high mark registered

during April, which aggregated $73,718,000. July purchases in this category approximated the May total, but topped the $69,580,000 expended for the same purpose during June by 3 per cent.

Expenditures for miscellaneous materials and supplies for the first seven months of 1946 totaled $479,423,000, a drop of 2 per cent below similar purchases during the comparable period of 1945 and of 3 per cent below the $496,746,000 expended for this purpose during the same seven months of 1944; however, they surpassed the $389,556,000 spent for similar materials and supplies during the corresponding months of 1943 by 23 per cent, topped 1942 purchases by 7 per cent, and were fully 27 per cent greater than the $378,187,000 spent for this purpose during the same seven months of 1941.

Crosstie purchases during the month of July were greater than for any other month so far this year and amounted to $8,047,000, a gain of 39 per cent over the $5,778,000 spent for this material during the same month last year. They topped July, 1944, tie purchases by 8 per cent, 1943 by 7 per cent, July, 1942, by 42 per cent and were 94 per cent greater than the $4,146,000 expended for crossties during the corresponding month of pre-war 1941.

July, 1946, crosstie purchases exceeded the $5,786,000 spent for ties during January by 39 per cent, were 32 per cent more than February purchases, 1 per cent greater than the $7,937,000 expended for ties during March, topped the April total by 9 per cent, May by 2 per cent, and were 18 per cent more than the $6,845,000 spent for crossties during June.

July Rail Purchases

Class I roads spent $5,103,000 for rail during the month of July, compared with $6,989,000 during the same month last year. July rail purchases were 9 per cent less than the $5,597,000 expended for this material during July, 1944; however, they exceeded rail purchases during the comparable month of 1943 by 18 per cent, dropped 8 per cent below 1942, but topped the $4,690,000 spent for rail during July, 1941, by 9 per cent.

Expenditures for rail during July were 6 per cent greater than the $4,830,000 spent for this material during January, topped the seven-year low registered during February by 539 per cent, and exceeded the $3,086,000 spent for rail during March by 65 per cent; however, they sagged 11 per cent below April purchases which aggregated $5,730,000. Rail purchases during July exceeded the May total by 8 per cent and were 42 per cent more than the $3,602,000 spent for this material during June.

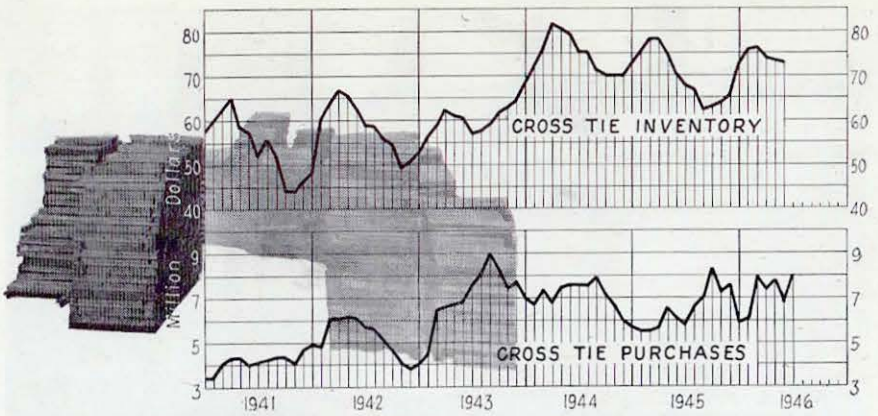


Photo courtesy of Wood Preserving Division, Koppers Co.

Crosstie purchases during the first seven months registered a substantial gain over the comparable period of 1945, but some roads are still finding it difficult to obtain supplies

Rail purchases during the first seven months of 1946 totaled $27,866,000, a drop of 35 per cent below the $42,648,000 spent for similar material during the corresponding months of 1945. They were also 38 per cent less than the rail purchases during the comparable period of 1944, 12 per cent less than rail purchases during the same period of 1943, 20 per cent under the 1942 total, and 19 per cent less than the $34,495,000 expended for rail during the same period of 1941.

Fuel Deliveries Increase

Class I roads spent $51,221,000 for fuel during the month of July compared with $47,049,000 spent for this material during the same month of 1945. July fuel purchases exceeded the $47,384,000 expended for the same purpose during the comparable month of 1944 by 8 per cent, topped July, 1943, purchases by 17 per cent, were 46 per cent greater than the $35,152,000 spent for similar supplies during the corresponding month of 1942, and topped the $29,693,000 fuel purchases during July, 1941, by 73 per cent.

Fuel purchases during July were greater than for any other month so far this year, with the exception of January and March. January fuel purchases, which aggregated $51,683,000 topped the July total by 1 per cent. However, July purchases were 3 per cent greater than the $49,702,000 spent for similar supplies during February, but sagged 6 per cent below March fuel purchases. The $29,668,000 expended for fuel during April was the lowest level reached in this category since 1941. July fuel purchases topped those for April by 73 per cent, those in May by 68 per cent, and were 25 per cent greater than the $40,880,000 spent for this purpose during June.

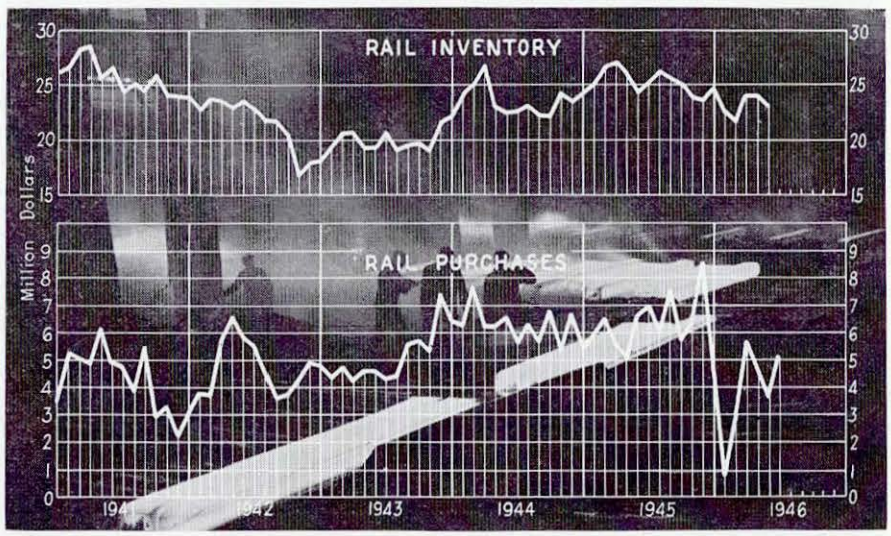


Photo courtesy of Inland Steel Company.

Rail purchases during July reflect a gain of 42 per cent over June, but the seven months total was far below pre-war levels

The Illinois Central's mobile visual aid unit will bring safety messages to more than 800 section gangs, small mechanical and station forces in the road's outlying districts. Built on a two-wheel automobile trailer, the unit consists of power generator, automatic slide projector, turntable, amplifier and loud speaker for presentation of films during the daylight hours

Educate Public and Workers to Prevent Accidents

Grade crossing dangers, trespassing problem discussed at the national safety congress held in Chicago

DISCUSSIONS of the new partnership of the National Safety Council and the Association of American Railroads in promoting safety at highway-railroad grade crossings, of visual education, of the policing of the railroad trespasser problem and of train and non-train accidents featured the three-day sessions of the Steam Railroad Section of the National Safety Council held in Chicago, October 8 to 10, inclusive. Attended by approximately 300 railroad officers, the section's meetings were held in connection with the 34th National Safety Congress and exposition of the council which lasted from October 7 to 11 and filled Chicago's hotels with some 10,000 delegates from every type of business and industry.

In connection with the Congress, the Illinois Central placed on display at Central Station its new mobile, highway, visual-aid unit, a two-wheel automobile trailer designed for showing safety films in daylight to isolated employees of the railroad. The Canadian Pacific also exhibited its new safety instruction car completed early this year at its Angus shops (see *Railway Age*, July 27, 1946, page 145). A converted coach equipped to show and fit safety shoes for employees all along its lines was displayed by the Chicago, Milwaukee, St. Paul & Pacific at Union Station.

Vice-Chairman L. E. Hoffman, inspector of operation, St. Louis Southwestern, presided over all three sessions of the Steam Railroad Section, in the absence of Chairman G. W. Elste, superintendent of safety, Baltimore & Ohio, who was ill. In his opening remarks, Mr. Hoffman stressed the importance of incorporating new appeals, new ideas and new approaches in accident prevention, and of individual education for the railroad worker. Pointing out that "the safe way and the one right way are identical," he said that, in most cases, the ways that have been handed down from generation to generation are wrong ways.

"The remedy is to take hold of the worker with a friendly hand even before he comes into our service," Mr. Hoffman continued. "Start educating him personally and individually that day, and never stop teaching him until he quits, dies, or takes his pension."

That entrance of the National Safety Council and state and municipal authorities into the grade crossing accident prevention campaign will greatly increase the spread of public awareness of the problem was the opinion expressed during the first-day's session by C. M. Kimball, chairman, Safety Section, A. A. R., and assistant to the vice-president, Southern. Pointing out that late in 1945, the railroads, through the A. A. R. or the regional presidents' conferences, started to make substantial contributions to the council for effectuating a new joint program of publicity on grade crossings, he declared that, generally speaking, the council will carry on the campaign with the public and with public officials, while the A. A. R. will handle it with railroad employees, managements and the public with which the railroads are themselves in contact.

The joint program is now sponsored and effectuated by the highway-rail grade crossing and trespassing committees of the Steam Railroad Section and the committee for the prevention of grade crossing accidents and the trespassing committee of the Safety Section, A. A. R. On the basis of the joint recommendations of these committees, the Traffic Division of the National Safety Council carries on an extensive program of billboards, posters, films, pamphlets, addresses and regional dis-

cussion groups. In this way, the grade crossing campaign is identified as a "traffic," and not a "railroad," problem.

Worst Trespassers Juvenile

R. H. Taylor, captain of police, Baltimore & Ohio, stated that the most serious problem in trespassing was juveniles. Of 33 cases of obstructions on tracks on one division of a particular road, 22 cases involved juveniles.

L. C. Heilman, secretary, joint committee on grade crossing protection, A. A. R., outlined the purpose of that committee, stating that the keynote has been uniformity for railroad-highway grade crossing protective devices throughout the nation. He reported the committee's success in prevailing upon the railroads and federal and state authorities to accept the A. A. R.'s recommended standards for grade crossing protection.

A. P. Button, assistant to chief engineer, New York Central, told the section that the deliberate attempt to beat a train over a crossing is one of five principal causes of grade crossing accidents. The other four causes reported by Mr. Button, who is also chairman of the area committee on highways, A. A. R., were carelessness and failure to take due precautions in approaching a railroad grade crossing; abstraction on the part of the driver of the motor vehicle; poor physical conditions at the crossing and lack of knowledge as to the operation of automatic protective devices.

During the open forum on grade crossing protection which followed, A. A. Lowe, superintendent of safety, Southern Pacific, in answer to a question as to whether or not it is more advisable to have stop signs at only the most hazardous crossings, stated that Oregon had placed stops signs at all crossings, with a resultant increase in collisions. He said that the Southern Pacific had reduced grade crossing accidents by having its "Daylights" burn their headlights all day and by painting the fronts of the locomotives aluminum.

S. A. Law, traveling safety engineer, Illinois Central, stated the belief that the railroads must go to the schools and clubs, newspapers and radios to tell their story on crossing care. The result, he said, will be a reduction in accidents.

W. C. Baker, general manager, Baltimore & Ohio, in an address on "Trains and Train Service Accidents," attributed their principal causes to derailments, collisions, man failures, equipment failures and track failures. While the volume of traffic in 1945, measured by locomotive and motor-train mileage, decreased 3.6 per cent compared with 1944, the number of train accidents increased 3.8 per cent. He reported that train service accidents in 1945 compared with 1944 showed an 8 per cent decrease in employees killed and 1.7 per cent increase in employees injured. He placed the blame for the increases on the necessity of employing many new and inexperienced men, and on the fact that older employees were working longer hours. This, he said, resulted in strain and fatigue, which affected the casualty record.

A panel discussion on train and train service accidents was led by C. L. LaFountaine, general safety supervisor, Great Northern, who told the section that his road interviewed new men, classified them and gave a 3-day course of instruction. After 10 days, he said, a report was rendered on the man's work.

L. B. Harper, personnel assistant in charge of safety, Illinois Central, said that a new employee of the road's shops spends one day with a safety committeeman touring the entire shop. He is shown safety signs and is told about the safety rules so that he can "get his feet on the ground."

I. E. Manion, general manager, Great Northern, stated that the two rules examiners on that road had examined 3,400 men each this year, and that round-table discussions on transportation and safety rules were conducted at terminals. He praised the "rule of the week" plan, which calls for the posting of specific rules on stands in the shops, in alleyways and other strategic points for observance. He added that the foremen should question the men on the selected rule for the week.

Paul Neff, safety inspector, Pennsylvania, in answer to a question concerning the handbrake problem, pointed out that there are 70 different types of handbrake installations, and urged that an educational program be started on every railroad each time a new type of brake comes out so that employees will know how to operate it. Out of 3,500 accidents of the "getting-on-and-off" nature, he declared, 600 were found due to jumping in anticipation of an accident, which may reflect inadequate knowledge of the operation of handbrakes.

Non-Train Accidents

Delivering the keynote address on "Non-Train Accidents," J. B. Akers, chief engineer, Southern, declared that the effectiveness of the safety program depends greatly on the supervisor and the foreman. He said that these "key" men must be "sold" on safety, and must accept the responsibility for safety in their departments.

In addition to keeping equipment safe, Mr. Akers said, management should make stronger efforts to enlist personal cooperation of employees. He suggested research into human and physical factors relating to safety.

A panel of 10 officers led by D. E. Mumford, assistant general safety agent, New York Central, conducted a discussion on non-train accidents, answering the questions of men in the audience. Replying to a question as to how to prevent accidents involving track motor cars, G. M. Dempsey, general safety inspector, C. M. St. P. & P., stated that, on his road, the operator of the car was provided with a list of stop crossings at which the car must be stopped and clearance observed both ways before proceeding. He reported very few cases where motor cars collide with automobiles.

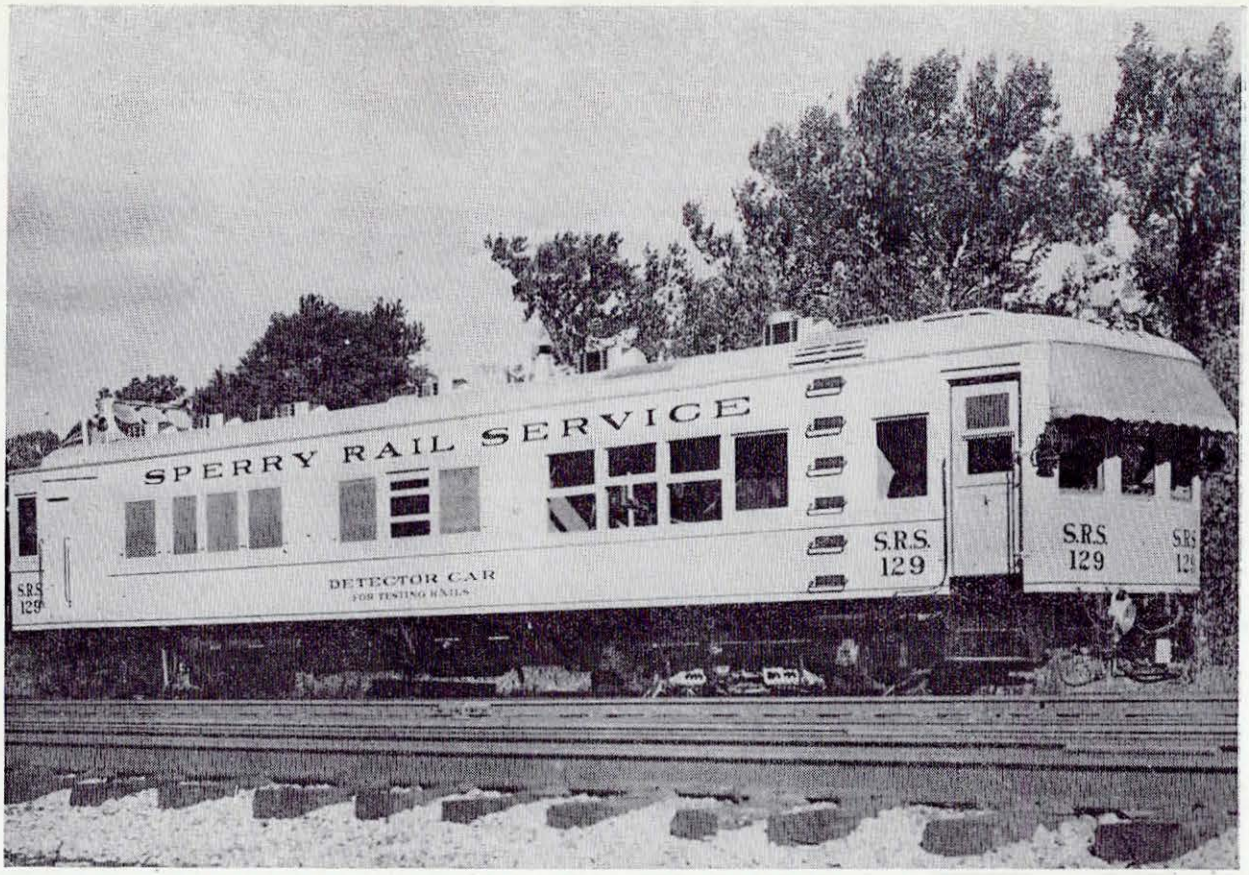
G. H. Hornbaker, division engineer, Western Maryland, told the section that motor cars were given a fixed time to go between certain points and an order giving such information must be received before the motor car is put on the the track. Another method of reducing motor car accidents was reported by E. L. Duggan, superintendent of safety, Atchison, Topeka & Santa Fe, who said that different safety supervisors were assigned at various times to check on whether or not the cars were being operated according to the rules. If not, he added, the violation was called to their attention, and a copy of the report sent to the violator's employee for corrective action.

Other Factors Discussed

Several officers discussed the safety factor in "good housekeeping," emphasizing the importance of having tools and equipment in their proper places so that workmen will not fall over them and injure themselves. In the matter of safety equipment for men working high above streams of water, Mr. Dempsey reported the case of a workman drowning after a fall, and said kapok vests were now being used. M. I. Dunn, superintendent, Chesapeake & Ohio, related a case on his road where a college athlete was stationed beneath a bridge with a boat, and rescued two men from drowning.

Dr. T. L. Hansen, chief surgeon, Chicago, Rock Island & Pacific, reporting for the health committee, stressed the importance of thorough and frequent physical examinations, with subsequent removal from certain jobs of those employees whose unfitness might cause injury to themselves or others.

Newly elected officers were announced as follows: Chairman, C. M. Bowling, superintendent of safety, Louisville & Nashville, who retired as secretary and news letter editor; vice-chairman, E. L. Duggan, superintendent of safety, Atchison, Topeka & Santa Fe; secretary and news letter editor, W. H. Roberts, superintendent of safety, Chicago & North Western.



A modern detector car for locating defects in rails

Measuring Efficiency in Rail Testing

Charts show results with detector cars operating at frequencies ranging from once to four times annually. Also indicate increased effectiveness of present-day equipment

By C. K. MENTZ

Chief Inspector, Sperry Rail Service

A STEEL rail, apparently perfectly sound when it leaves the mill, may subsequently under the pounding of traffic develop hidden internal defects which separate the metal, and these, if undetected, may result in complete rupture of the rail and possibly in a derailment. Of course, the railroads, by testing the rails in track at frequent intervals, find the great majority of those with this cancer-like growth and remove them from track. This article is in part an analysis of the progress which railroads have made in detecting and eliminating such hazards to safety.

The Sperry Rail Service, by correlating the results of its fleet of detector cars, has developed standards for measuring the efficiency of rail-testing programs. These standards, while originally set up to check the accuracy of these detector cars, have already been accepted by a number of railroads. They may be used not only to determine the efficiency of the testing program, but also as a basis for determining how frequently the rails should be tested, and perhaps even to forecast the ultimate safety of the rails themselves.

Charts Show Standards

The application of these standards is illustrated by the three performance charts accompanying this article, which serve as examples of how the efficiency of any rail-testing program may be checked. The charts are typical of those used by the Sperry Rail Service to examine the results of testing programs for individual railroads. They give averages of the data on individual testing programs for those railroads which report all service failures to the Sperry Rail Service. The efficiencies shown are believed to constitute a reasonable basis of comparison because the failures on these roads account for more than half of the total failures on all the roads tested by this service.

Many factors will, of course, affect the efficiency of a testing program. The greatest influence on efficiency, however, is exerted by the frequency of testing. To show the nature of this influence three separate charts are used, which are based on three different frequencies of testing—once, twice, and four times a year.

All the charts contain three sets of

data. The bar graph at the bottom of each chart shows the average number of miles of track covered per month by one detector car in testing a representative 2,000-mile section of track. A distance of 2,000 miles was chosen because that is the average length of a test run for a railroad. The line above the bar graph indicates the total number of failures found in that section of track. (Total failures include the number of defective rails found in the testing program, as well as the number of rails failing in service.) The curves at the top of each graph show the efficiency of the testing program as represented by the number of defective rails detected by testing equipment divided by the total number of defective rails found during the year as a result of both tests and service failures. To explain further what is meant by efficiency, let us find out how it was determined that in 1945 Sperry detector cars were 84 per cent, 89 per cent, or 94 per cent efficient, depending principally upon the frequency of testing.

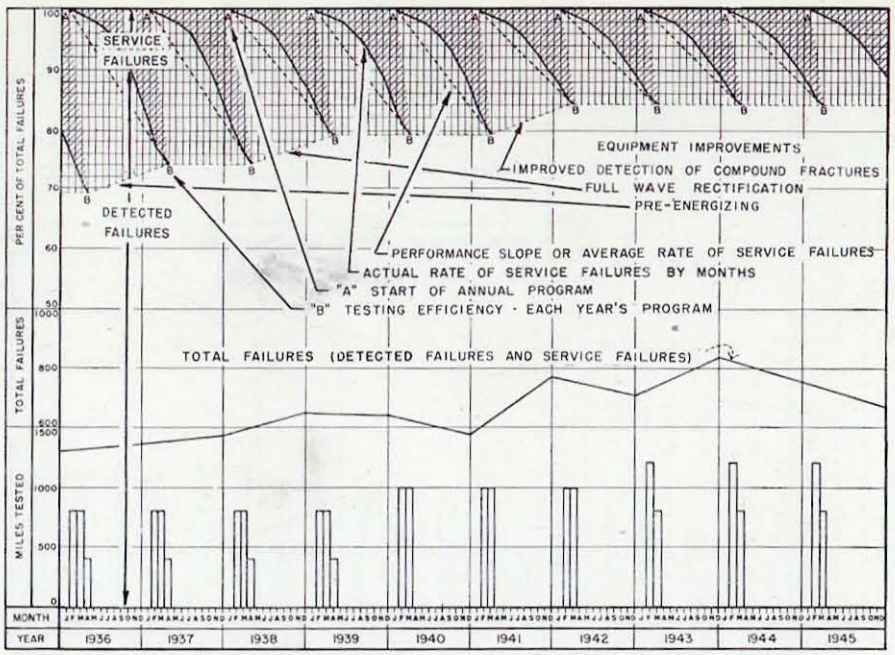


Chart No. 1—Results of one test annually. Bar graphs at bottom show average mileage tested per month, the continuous line curve directly above these graphs shows the total number of failures (detected and service) found in the section of track tested, and the curves at the top indicate the efficiency of the testing program

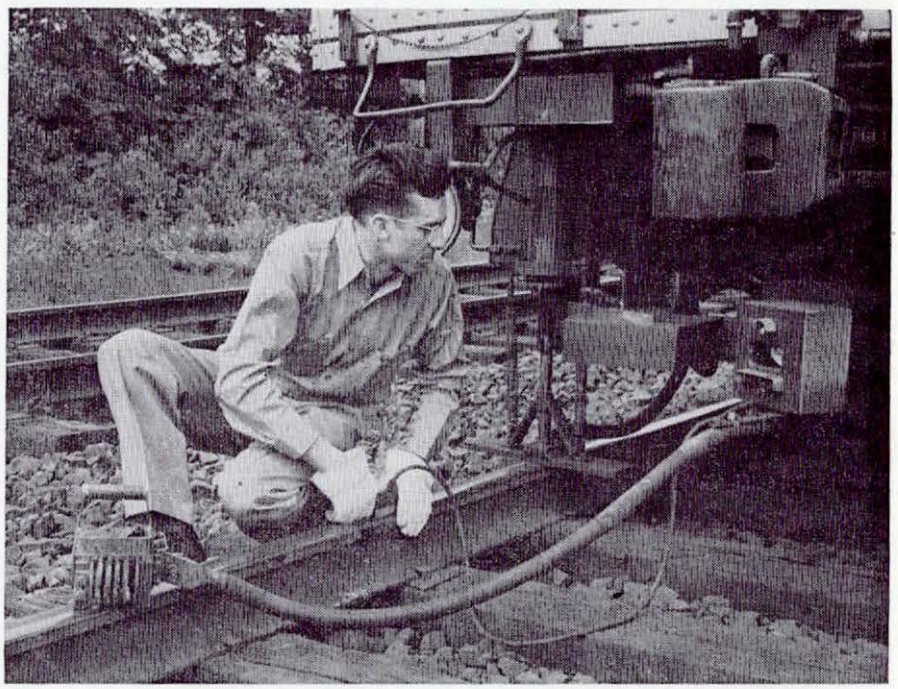
Testing Once a Year

Chart No. 1 shows the results of testing once a year. To compare results obtained from testing rail at different frequencies, a standard length of time was chosen in which to represent the efficiency of all testing performed during that standard period. One year was adopted as the standard because all roads reporting service failures make at least one test in that time.

Immediately upon completion of a test, the only known defects in the rails are those discovered by testing. The efficiency of testing at that moment is therefore 100 per cent. If any service failures develop in the month following the test, the number of defects discovered in testing is added to the number of service failures to determine the total number of known defective rails. The percentage of efficiency one month after testing is found by taking the number of defects discovered in testing and dividing it by the total number of known defective rails, then multiplying the quotient by 100. Similarly, during each succeeding month following a test the number of service failures is added to the number of defects discovered in testing to obtain the total number of known defective rails. The efficiency at any time during the year is represented by the number of defects detected in testing divided by the total number of known defective rails. When another test is made at the start of a new yearly program, efficiency is again considered to be 100 per cent and the foregoing method of computing test efficiency is repeated during the new year.

The fact that Sperry detector cars were 84 per cent efficient on rail that was tested only once in 1945 means that 84 per cent of the potential failures in that rail were detected in the single test, and that the failures represented by this percentage were prevented from occurring during the year. The trend toward greater efficiency from year to year may be noted by comparing the efficiency percentages at the ends of succeeding test years, as shown on Chart No. 1 (as well as Charts No. 2 and No. 3).

When testing track twice a year, the efficiency of testing is computed over the same standard period (one year) to determine what increase in efficiency may be gained by the second test. The chart for testing twice a year is based on test data from a different group of railroads than Chart No. 1. While it



Indications of rail defects as shown on the recorder tape in detector cars are checked by hand testing equipment, as shown here, to verify the existence of an internal transverse defect

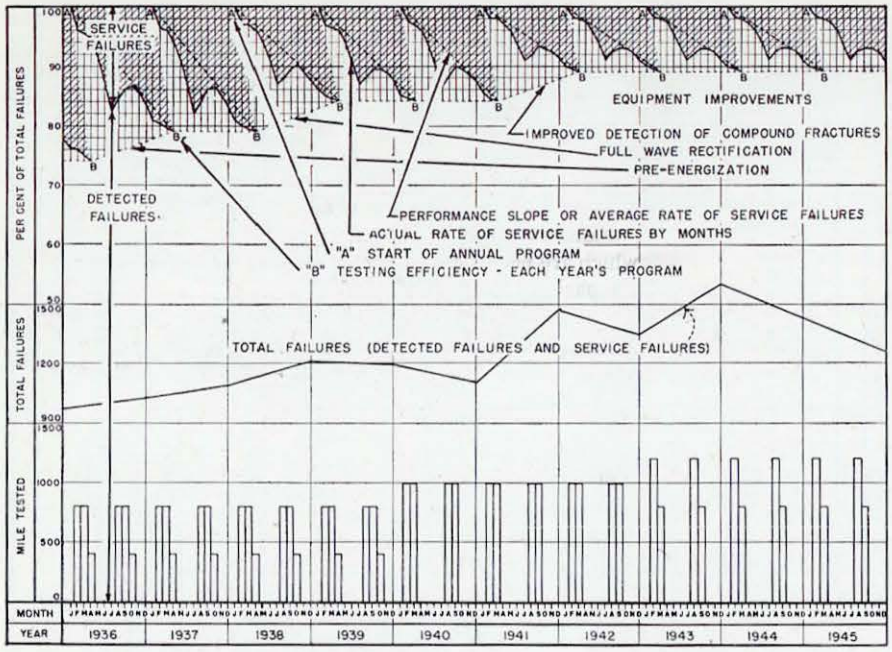


Chart No. 2—Efficiency of rail testing program and other data when two tests are made annually

is true that different weights of rail, varying traffic conditions, and other factors will also influence the efficiency percentages, it is a fact that the charts afford a means of comparing the relative efficiencies of the two methods of testing. According to the average results obtained during 1945, 89 per cent efficiency may be expected when testing twice a year. In other words, all but 11 per cent of the potential rail failures are eliminated instead of all but 16 per cent, as when testing once a year. In terms of safety, this gain in efficiency means that over 30 per cent of the service failures that were *not* eliminated by testing once a year *are* eliminated by testing twice a year.

On Chart No. 2, the efficiency of the testing program at the start of a standard year is determined in the same way as for Chart No. 1. The only known defects in the rails at that time are those defects that were discovered by testing. Efficiency is, therefore, considered to be 100 per cent. As service failures accumulate, the efficiency percentage decreases until a second test is made. The number of defective rails detected in the second test increases the number of defects detected in a standard year, but it also adds to the total number of known defective rails. The percentage of test efficiency, therefore, rises only slightly, and then continues to decrease for the remainder of the year.

The definite change in the slope of the efficiency curves on Chart No. 2 illustrates some of the additional information that may be gained from these curves. For example, if a line is drawn from the highest point of an efficiency curve at the beginning of a test year to the lowest point on that curve at the end of the test year, the slope of that line (called the performance slope) will indicate the average rate of service failures for the year. When rail is given more than one test a year, any point on the efficiency curve that shows a sharp deviation from the performance slope should be carefully investigated to determine the cause. As the slope of an efficiency curve becomes greater, it indicates that rail is rupturing in service at a higher frequency and track safety is decreasing more rapidly. The curves show the least slope—hence the greatest track safety—in the period after each test. The relationship between frequency of test and track safety is further illustrated by Chart No. 3.

Testing Four Times a Year

Where Sperry cars were used to test the same track four times during 1945, average results indicate that tests were 94 per cent efficient for the entire year. From the point of view of track safety, this percentage indicates that over 60 per cent of the service failures encountered in spite of testing once a year are avoided by testing four times a year. The efficiency curves of Chart No. 3 are computed in the same manner as for the other two charts. The high rate of efficiency is obtained because potential failures in the rail are detected before they have time to grow and rupture rails in service.

In rail tested only once in 1945, for example, 58 per cent of the defects detected were small (less than 20 per cent of the cross-sectional area) of the railhead), and 15 per cent of the defects detected were large (more than 40 per cent of the cross-sectional area of the railhead). By comparison, when rail was tested three to six times in 1945, 83 per cent of the defects detected were small, and only 4 per cent of the defects detected had time to grow large. Failures occurring during a testing program of four or more tests a year, and those occurring in the 30 to 90-day period following any test, are mainly attributable to defects difficult to detect. Such defects are in the joint-bar area, in turnouts and frogs, and directly under very bad surface conditions. A great deal

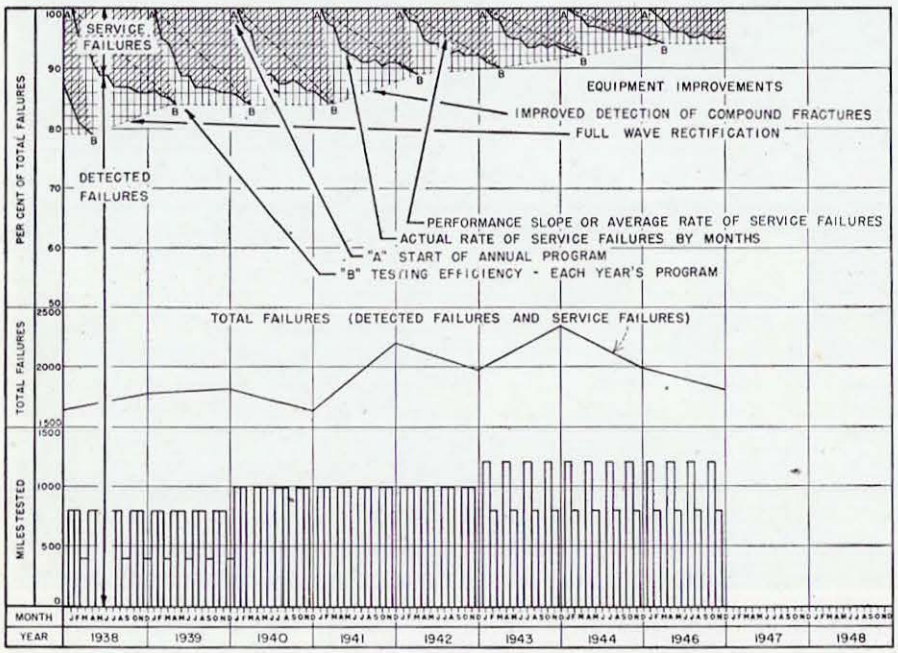


Chart No. 3—Results of testing program when four tests are made annually

of research effort is now being concentrated on improving the detection of such hard-to-find defects.

A comparison of the curve on each chart indicating total failures per 2,000 miles of rail with the trend of the efficiency curves on the same chart demonstrates the increases in efficiency that have occurred over the years as a result of improvements in rail-testing equipment and in methods resulting from extensive research and development. With the exception of the last two years, the total number of rail failures per year has been steadily increasing, probably because of war-disturbed traffic conditions. In spite of this trend, testing efficiency has been increasing. This holds true regardless of the frequency of testing or territorial track conditions. The sharp rises in efficiency in the years 1936, 1938, and 1941 were caused by major improvements in testing equipment made during those years.

These charts present a comprehensive, monthly record of what has been accomplished in detecting potential failures in rail before those failures can actually occur in service. The charts also demonstrate how standards for measuring the efficiency of testing rail in track may be applied to any particular railroad in order to predict failures of rail in service and to aid in determining what frequency of testing is required to maintain a given condition of track safety.

The efficiency curves and the percentages of efficiency maintained in 1945 provide the railroads with a good yardstick with which they can measure detector-car performance and testing-program efficiency. In addition, they provide previous results which are necessary for the purpose of comparison, and which show the trend year by year.

Planning Testing Programs

The standards for measuring the efficiency of testing rail in track provide a systematic presentation of data which can be maintained with current cumulative values. Individual, well-planned testing programs should fall within five per cent above or below the standards presented here. This five per cent variation from the average can be expected because conditions on each individual railroad vary from other roads in such matters as the policy of replacing old and worn rail, the weight of rail used, the type of traffic handled, and other factors which affect the rate of rail failures and hence testing efficiency. Once this data has been collected and correlated for several successive annual programs by a particular railroad, that road should be able to predict with reasonable accuracy the number of failures it will have in any given period after testing, thereby providing a basis for planning a rail-testing program. Depending on the standard which satisfies its needs, the testing methods and testing frequency may be determined.

Ten years ago, as shown by the curves for 1936, the standards of efficiency were considerably lower than they are today. The railroads have realized the advisability of raising those standards to their present level. To recapitulate, these are as follows:

Testing once each year.....
84 per cent efficient

Testing twice each year.....
89 per cent efficient

Testing four times each year....
94 per cent efficient

Results such as these, which are typical, speak highly of the tremendous effort being made on the part of the railroads to produce the utmost in safety.

The standards of measurement presented here have already been adopted by many railroads. It is not improbable that all other roads that plan their rail-safety programs carefully will eventually use these or similar methods to maintain high standards of efficiency.

C. & O. Lines Withdraw from A. A. R.

R. R. Young asks for new organization of management, security-holders and labor to "promote free competition"; scores A. A. R. on rate and wage policies, competitive bidding, "obsolescence"

At concurrent board meetings held in Cleveland, Ohio, on October 15, the directors of the Chesapeake & Ohio, the New York, Chicago & St. Louis and Pere Marquette authorized the withdrawal of the three affiliated roads from membership in the Association of American Railroads, and from the activities of the association, with the exception of certain agreements and standards necessary for the operation of the country's railroads as a continuous network. Notification of withdrawal was given to the A. A. R.'s board of directors in identical letters transmitted separately by each of the three roads, dated October 19, and signed by their respective presidents. In accordance with the association's rules, resignation from membership therein will take effect after the expiration of 90 days from the date of notification.

Immediately following the board meetings, Robert R. Young, chairman of the board of the C. & O., met with members of the press at his office in the Terminal Tower to announce the withdrawal and to explain that he "was inviting the constructive elements of the railroad industry to consider the creation of a new organization to include railroads, railroad security holders and railroad labor to promote free competitive enterprise in the interest of the public, the railroads, their employees and the nation's business."

Six-Point Criticism of A. A. R.

The C. & O. chairman then circulated a prepared statement in which he accused the association of lobbying for three years "for legislation to exempt it from the anti-trust laws, when its money and energies might better have gone to improve equipment and service, to fight for the billions in rail securities which are being unjustifiably squeezed out in reorganizations and to preserve a fair balance between wages and rates."

In support of his allegation Mr. Young went on to criticize the A. A. R. on six specific points as follows:

"(1) The basis of Department of Justice charges now pending against the western railroads is that the association has failed to keep its hands out of the establishment of tariffs, and has encouraged its members to indulge in other non-competitive practices. Because of these allegations, the entire industry promises to become unnecessarily involved in expensive and harmful litigation of long duration.

"(2) The association is accused of having maintained freight rates, discriminatory against the South and West, for the purpose of perpetuating industry along the lines of the few eastern roads that dominate the association's affairs.

"(3) Ignoring the highly successful experience of the Chesapeake & Ohio

Lines, the association strenuously opposed the introduction of competition in the sale of railroad securities. The source of this opposition could only have been banker-dominated railroads, because, after competition became general, the railroads saved tens of millions of dollars at the expense of these banking interests.

"(4) Under the association a short-sighted philosophy of trying to squeeze the last dollar of revenue from obsolete equipment has flourished; competitive technological development has been discouraged; and relations between railroad officials and equipment suppliers have continued far too intimate.

"(5) The association has discouraged rather than urged through service at such terminals as Chicago and St. Louis. It was the Chesapeake & Ohio Lines, rather than the association, which forced this service—to the great profit of the industry and the convenience of its patrons.

"(6) It was the Chesapeake & Ohio—not the association—which forced the elimination of the vast black market in train space reservations—an easy step that has not only saved the railroads millions in revenues, but has made previously unsold space available to hundreds of thousands of anxious travelers."

Seeks Better Service

For these reasons, Mr. Young declared, "We think the quarter of a million dollars a year we have been paying in A. A. R. dues can be better spent by ourselves."

Asked how the proposed new organization of railroads, security owners and labor groups would benefit the traveling and shipping public, the C. & O. chairman suggested that it would encourage such improvements as he has fought for in competitive bidding for railroad securities, through trains between the East and West and modern sleeping cars. He conceived also that it would promote actively a code of courtesy and good-will among railroad employees, and "would insist on good service."

With regard to his criticism of the A. A. R.'s role in rate-making as the basis for the anti-trust suit brought by the Department of Justice, Mr. Young made it clear that he does not disagree with the conference method of rate-making as a whole, nor with the territorial bureaus, but with what he termed the domination of the association by certain large roads. [He named the New York Central and Pennsylvania, alleging that they "run the A. A. R. their own way," while "the leading defendant of the Lincoln anti-trust case takes care of the situation west of the Mississippi."]

Mr. Young laid particular emphasis on what he called the A. A. R.'s "failure to make any real effort to obtain rate increases," after allowing three retroactive wage increases since 1939. He went on to indict others besides the A. A. R., however, for their part in opposing or delaying needed revenues for the carriers, along the lines of his press statement of September 19 and letter to Acting Secretary of Commerce Schindler of September 24 (see *Railway Age* for September 28, page 511). Declaring that "Stalin chuckles when he sees the state our railroads are in," Mr. Young accused "those who starve the railroads" of blocking the improvements which free enterprise could bring about in railroad transportation.

Anent his plea for protecting the rights of stockholders of properties undergoing reorganization, Mr. Young anticipated no opposition from the railroad brotherhoods. "They would rather have Bob Bowman [C. & O. president] as their chief than Mr. Hannegan," he said, "but realize that they will get the latter if we do not give investors a living wage."

According to the C. & O. chairman, the new railroad organization he proposes would be equipped to handle wage matters successfully on a national basis, because the labor chiefs would be members of it.

He anticipated that it could replace the present territorial conferences dealing with labor matters.

Asked whether he believed the A. A. R. would "fight" him for his action in withdrawing from membership, Mr. Young asserted that the association probably would do so, because his action "threatens its future." It is his belief, however, that 90 per cent of the membership would agree with his criticisms of the organization, were they not "dominated."

Letters to A. A. R. Board

The complete text of the letter sent by R. J. Bowman, president of the C. & O., to the A. A. R.'s board of directors (which is identical to those sent by the presidents of the P. M. and Nickel Plate), dated October 19, is as follows:

"Pursuant to action of the Board of Directors of the Chesapeake & Ohio Railway Company taken this day, I hereby notify you of the intention of the Chesapeake & Ohio Railway Company to withdraw and resign from membership in the Association of American Railroads upon the expiration of 90 days after the date hereof. This notice is given in accordance with the provisions of the assent to the Plan of Organization of the Association of American Railroads, executed for the Chesapeake & Ohio Railway Company by Mr. J. J. Bernet, President, on September 24, 1934, and with Article 2 of the said Plan as amended February 14, 1946.

"This withdrawal and resignation from membership in the Association is not, however, to be construed as affecting this company's rights and responsibilities as a party to the following agreements:

"(1) Car Service and Per Diem Agreement, included Code of Car Service Rules and Interpretations—Freight, Code of Per Diem Rules and Interpretations—Freight, and Appendices thereto, Code of Passenger Train Car Service Rules, and Code of Mileage and Per Diem Rules—Passenger, as published in the Official Railway Equipment Register, Volume LXII, No. 1, Agent Zenobia's I. C. C.—R. B. N. No. 280, supplements thereto and successive issues thereof:

"(2) Interchange Agreement, including the Code of Rules governing the Condition of, and Repairs to, Freight and Passenger Cars for the Interchange of Traffic, commonly known as 'Interchange Rules,' effective January 1, 1946, supplements thereto and revisions thereof; and

"(3) Agreement relating to the transportation of explosives evidenced by Agent W. S. Topping's Freight Tariff No. 4 publishing Interstate Commerce Commission Regulations for Transportation of Explosives and Other Dangerous Articles by Freight including Specifications for Shipping Containers, I. C. C. No. 4, supplements thereto and successive issues thereof.

"This company will continue to bear its pro rata proportion of the costs and expenses incurred by the Car Service Division, the Mechanical Division, and the Bureau of Explosives, of the Association of American Railroads, incident to the administration of the foregoing agreements or of any of the rules formulated, promulgated, or prescribed thereunder.

"Furthermore, it is this company's intention that in its relations with other carriers it will continue to comply with the following rules:

"(1) Railway Accounting Rules, to wit, Mandatory Freight Accounting Rules and Forms, Recommendatory Freight Accounting Rules and Forms, Mandatory Overcharge Accounting Rules and Forms, Mandatory and Recommendatory Passenger Accounting Rules and Forms, Mandatory Disbursement Accounting Rules and Forms, and Mandatory Arbitration Rules; and

"(2) Freight Claim Rules, Edition of 1943, supplements thereto and revisions or reissues thereof.

"The Chesapeake & Ohio Railway Company will continue to assume its proper proportion of all obligations incurred as a member of the association to the effective date of its withdrawal and resignation from such membership."

The Importance of Railway Police

First post-war meeting of Protective Section, A. A. R., brings commendation for war work and plans for future

FROM the moment of the attack on Pearl Harbor until the signing of the surrender in Tokyo bay the role of the railway police officer on the American railroads was one which demanded the utmost in initiative, intelligence and ingenuity. You and your organizations were called upon overnight to arrange for the protection of these vital arteries of transportation, the life-line of America, and to safeguard a rapidly expanding war tonnage so necessary to the victorious results achieved abroad. Not only was it your duty to protect the physical plant and the tremendous traffic carried by it, but also you rendered invaluable service to the industry by your thorough and capable investigation of applicants for employment, thereby insuring only the more desirable for the war job as it became necessary for the railroads constantly to increase their personnel to carry the ever-expanding load."

With these words, Clark Hungerford, vice-president, operations and maintenance department of the Association of American Railroads, summarized the hitherto practically unsung accomplishments of railway police. Mr. Hungerford spoke before the 26th annual meeting of the Protective Section, A. A. R., held at the George Vanderbilt hotel, Asheville, N. C., on October 7, 8 and 9, and attended by approximately 100 members.

The meeting was presided over by L. A. Thomas, assistant to vice-president of the Southern. Throughout the sessions, the subjects stressed were loss and damage to freight; the investigation of prospective employees before they are hired; and increasing juvenile delinquency as it affects railways.

M. J. Max, chief of police of the Michigan Central (New York Central system), was elected chairman for the coming year, succeeding Mr. Thomas, and W. I. Spitler, chief special agent of the Chicago, Indianapolis & Louisville, was elected vice-chairman.

Committee Reports

While, because of the war, the continuity of meetings has been interrupted, the committees have remained active and several constructive reports were delivered at the convention. A committee, of which F. G. Love, superintendent property protection of the New York Central, was chairman, reported on Unlocated Loss and Railroad Police Responsibility. Chairman Spitler delivered the report for the Law Enforcement committee, which shows a nation-wide increase in crime during the first six months of 1946. Post-war plans of the railway police were discussed in the report of the committee of which H. L. Denton, general superintendent of police of the Baltimore & Ohio, was chairman. The organization of regional police committees as between the different railroads for the purpose of cooperation in the prevention of crime was discussed in a report of the committee of which Otto Parrhysius, chief special agent of the Northern Pacific, was chairman.

The report of the Committee on Trespassing was delivered by Chairman J. N. Godman, superintendent of police of the Reading, and as a part of the consideration of this subject a technicolor moving picture on juvenile trespassing was presented, with attendant remarks by Lieutenant Joseph F. Corey of the Erie police department. This motion picture has been displayed at several hundred cities and towns along the Erie. Police officers of that railway have taken courses in public speaking in order to make the lectures more effective. The result has been a marked decrease in the number of accidents involving juvenile trespassers.

A roundtable discussion, presided over by Mr. Max, brought forth an interchange of data and information on various subjects. These included malicious tampering with tracks; investigation of applicants for employment; baggage losses; and training in service.

Other Addresses

L. W. Horning, vice-president of the New York Central, told the meeting that there are still just as many new frontiers for alert railway men as there were many years ago when the spike completing the first transcontinental railway was driven at Promontory, Utah. He pointed out that progress in railroading is evolutionary rather than revolutionary, and that there are many railway frontiers yet to be conquered, including the frontier of technical development and particularly the frontier of closer association and understanding between management and employees.

Harry A. DeButts, vice-president of the Southern, stressed the important part which railway police will play in the future of railroading. He outlined the progress that has been made from the "cinder dick" of many years ago to the alert railway police officer of today, who is an expert in all modern methods of crime detection.

W. W. Owens, vice-president of the Railway Express Agency, outlined methods whereby the railway police and those of the Railway Express Agency may cooperate to mutual advantage. C. H. Dietrich, executive vice-chairman, Freight Claim Division, A. A. R., told the police chiefs how they can assist in reducing the steadily mounting loss and damage bill on the railways.

T. L. Caudle, assistant United States attorney, told of the magnificent job done by railway police during the war, and stated that no act of enemy sabotage was committed on American railroads during the entire war period. The work of the railway police chiefs has been of incalculable value to the country, he added. Both Mr. Caudle and Inspector L. A. Hintz of the Federal Bureau of Investigation warned, however, that since the end of the war social and economic maladjustments have brought about an increased crime rate. Inspector Hintz gave several valuable suggestions as to how the railway police may cooperate with the F. B. I. in reducing juvenile delinquency which, it was stated, is responsible for more than 50 per cent of the crimes on most railways.

Frank J. Wilson, chief of the U. S. Secret Service, and David Stephens, inspector of the U. S. Post Office Department, delivered addresses showing how railway police can cooperate with their respective crime detection agencies. Charles Layng of the staff of *Railway Age* told the police chiefs how military intelligence on transportation subjects was gathered and coordinated during the war.

Governor-General drives train

Viscount Alexander of Tunis, Canada's new Governor-General, receives last-minute information from veteran engineer Frank Cranston before taking over the throttle of a Canadian Pacific locomotive in the Canadian Rockies.

GENERAL NEWS

New Contract Settles Long Island Dispute

Agreement on local rules will not disturb general moratorium, board says

An agreement substantially embracing the terms of the settlement in the national railroad dispute last May was signed on October 15 by representatives of the Long Island and District 50 of the United Mine Workers, thus ending the threat of a strike which had been scheduled to start at 12:01 a.m. on October 22.

The agreement called for an 18½ cents an hour wage increase, changes in working rules of a local nature and a moratorium until May 25, 1947, on those rule changes proposals which also had been involved in the national settlement. "Most of the local rules changes agreed upon," J. C. White, vice-president of the Long Island, said, "involved established practices in existence on the railroad for some time, which now have been written into the rules. The union's demands for changes of a purely local nature have been completely met without upsetting the national pattern."

Cost to the Company—The wage increase of 18½ cents an hour will add $479,000 a year to the cost of operations, a spokesman for the road said. Any increases in costs which may result from the rule changes will not be of a substantial nature, he added.

The three-man emergency "fact-finding" board created on August 22 by President Truman and headed by Frank M. Swacker of New York, submitted its report on the controversy on October 11. The board reported that during the negotiations leading to the agreement, the parties laid aside the rules involved in the national moratorium and dealt with "those strictly local to the Long Island." As a result, agreement was reached "with some compromises" on 174 of these local matters and the union withdrew its demands with respect to 23 others. The remaining 23 of the union's 220 demands involved rules covered by the national moratorium. With respect to these, District 50 agreed that its members should abide by the present rules until the expiration of the moratorium on May 25, 1947.

Union Procedure Approved—The board expressed much sympathy for District 50. Declaring that District 50 had a right to present the rules demands, the board acquitted it of having fomented the controversy through union rivalry. In the former connection the report said that the Mine Workers' union "was not a party to the national movement and, consequently, not a party to the moratorium agreement, and not estopped thereby."

At the same time, the board recognized that from the carrier's point of view there were "two very practical obstacles to making any agreement to be effective immediately"—the prospects of reopening questions involved in the moratorium as to other L. I. train-service employees and as to the employees of all other railroads. With respect to the charge that District 50 initiated the controversy to enhance its position in the railroad field, the report said:

"An unfortunate incident of the controversy was the impression held by the carrier that 'the motives behind this attempt' were attributable to promotional activities of the United Mine Workers of America; in substance, that it fomented the controversy to demonstrate that, by its tactics, it might be able to obtain more for these employees than had the Brotherhood of Railroad Trainmen.

"However, the indisputable circumstances show that the grievance is of long standing, long before District 50 of the U.M.W. had anything to do with the matter, and that the organization was solicited by these employees to come into the picture in their behalf because of their repeated frustration through the grievance being handled as an incident to national movements, concerned primarily with other matters more important to the great majority of trainmen."

Finds Road "Unique"—Previously the report had isolated the "six principal issues," including those concerning short turn-around service or the so-called eight-within-ten-hour rule, and the payment of overtime at straight time rates, rather than time-and-one-half. It said these issues had been pointed up on the Long Island because the road is "unique" in having 90 per cent of its service in the short turn-around class. To express its sympathy for the demand that the rules applying to short turn-around service be made more favorable to employees, the board quoted from the report of the emergency board which passed upon the demands last spring of the Brotherhood of Railroad Trainmen and Brotherhood of Locomotive Engineers after those two organizations had refused to join the arbitration proceedings with the other unions.

Mr. Swacker was a member of that board, which concluded that there should be some liberalization of the rules covering short turn-around service. Its more specific recommendation was that the parties "immediately negotiate a new rule designed to reduce the breadth of spread of the

(*Continued on page 657*)

Canadian Roads Ask 30% Rate Increase

Coal and coke only exception; western provinces plan firm opposition

The Railway Association of Canada, representing all the rail lines but principally the Canadian Pacific and Canadian National, has filed with the Transport Commission at Ottawa an application for a general freight rate increase of 30 per cent on all commodities except coal and coke. On these fuels it has asked an increase of 20 cents per ton in rates to and including $1 per ton, 30 cents increase in rates from $1.01 to and including $1.50, and 40 cents per ton increase in rates over $1.50 per ton.

At the same time the railways, so long as price control is in force, must also get approval from the Wartime Prices and Trade Board at Ottawa, but as the hearings by the Transport Board on this application are likely to extend to next spring it is considered to be likely that most of the price control machinery will have disappeared before the Transport Board finally gives its decision.

Western provinces have been expecting the move of the railways for higher rates, as it has been forecast many times and was hinted before a committee during the last session of the federal parliament by President R. C. Vaughan of the Canadian National. Premier T. C. Douglas of the Saskatchewan Socialist government, who was in Ottawa the day the application was announced, said the three prairie province governments (Manitoba, Saskatchewan and Alberta) would oppose the application and it is said to be probable that British Columbia will join them. In the past every time the Canadian railways have moved for higher rates it has developed into a nation-wide political battle.

Rates affected by the proposed increases would include those on freight from and to United States-Canadian border points, on import and export traffic through Canadian ports moving at rates not related to rates in effect from and to United States ports, and on a number of other categories.

The latter include all class and commodity rates, agreed charges, milk and cream in passenger and freight service, protective service, collection-on-delivery service, local switching charges—including inter-plant and intra-plant and reconsigned switching charges, special freight trains, crane service, railway equipment on own wheels and other accessorial and terminal charges.

A number of United States railroads

(*Continued on page 657*)

Would Leave Seaboard in Trucking Business

Examiners uphold previous I. C. C. approval of its highway service

Rejecting contentions of protesting motor carrier interests, including American Trucking Associations, Examiners B. E. Stillwell and David Waters have recommended in a proposed report that the Interstate Commerce Commission affirm its prior findings to the effect that public convenience and necessity require operation by the Seaboard Air Line of auxiliary and supplemental trucking services over a network of routes sought in 12 proceedings which were reopened for further hearing following the Supreme Court's June 13, 1945, ruling that the commission erred in the previous hearing when it excluded evidence as to the effect of the proposed operations on independent over-the-road truckers. Disposing also of eight other proceedings reopened for that limited purpose, the proposed report there recommended certain modifications of the conditions designed to keep the trucking operations auxiliary to or supplemental of S. A. L. rail service.

All proceedings involved in the proposed report are sub-numbers of the title case, MC-86687, and the whole group of applications cover operations which generally parallel Seaboard rail lines in Virginia, North Carolina, South Carolina, Georgia, and Florida. The proposed report explained further that the network consists of a northern group and southern group of routes, the two groups being unconnected.

Two Route Groups—"Generally speaking," it continued, "the northern group embraces connecting routes which extend from Richmond, Va., on the north, to Columbia, S. C., on the south, and from Wilmington, N. C., on the east, to Rutherfordton, N. C., on the west; and it also includes an unconnected route between Greenwood, S. C., and Great Falls. The southern group embraces connecting routes radiating out of Jacksonville, Fla., to Fernandina on the east, to Chattahoochee on the west, and to Sebring, Tampa, and Clearwater on the south, and includes an unconnected route between Lyons, Ga., and Rhine."

On November 30, 1942, the commission issued a single certificate authorizing operations involved in 14 proceedings (the title case and Sub-Nos. 1-10, inclusive, 15, 18, and 19) and superseding and canceling certificates previously issued in the same proceedings. This decision was attacked in court by A. T. A. and other motor carrier interests, the attack resulting in the Supreme Court's decision mentioned above (see *Railway Age* of June 23, 1945, page 1114). It developed at the further hearing that S. A. L. no longer desired to operate over routes between Gaston, S. C., and Garnett, and McBee and Sumter, which had been sought in the title case and Sub-No. 1; so the examiners recommended dismissal of those applications.

This left for determination 12 applications reopened in their entirety as a result of the court decision; and the commission, meanwhile, reopened the eight others for the limited purpose of considering modification of the conditions restricting truck operations to the auxiliary and supplemental type of service. The latter, mostly in the southern group of routes, are Sub Nos. 21 to 28, inclusive.

Would Tie to L. C. L. Service—In recommending that the commission reaffirm its approval of the operations, with modifications in the conditions, the examiners suggest that a single consolidated certificate be issued to cover all routes involved. Among other stipulations, the conditions included in the proposed single certificate would definitely tie the trucking operations to the railroad's l. c. l. service rather than to freight service generally. In this connection the examiners said that the conditions were intended to apply to l. c. l. service, and they "should be clarified so that this intent will be plainly understood." Thus the recommended conditions are:

1. The service by motor vehicle to be performed by applicants shall be limited to service which is auxiliary to, or supplemental of, their less-carload rail service.
2. Applicants shall not serve any point not a station on their rail line.
3. No shipments shall be transported by applicants as a common carrier by motor vehicle from Richmond to Petersburg, Va., or from Jacksonville to Starke or Ocala, Fla., or between any of the following points, or through or to or from more than one of said points: Richmond, Va.; Henderson, N. C., Raleigh, Hamlet, Wilmington, Charlotte; Columbia, S. C., Greenwood; Jacksonville, Fla., Tallahassee, and Tampa.
4. Such further specific conditions as the commission, in the future, may find it necessary to impose in order to restrict applicants' operations by motor vehicle to service which is auxiliary to, or supplemental of, their less-carload rail service.

Dealing with the evidence which the Supreme Court required to be considered, the examiners said that the protestants' presentation as to the economic effect of the proposed operations on independent motor carriers "fails to show that their operations would be endangered or impaired to any appreciable extent, notwithstanding the fact that some traffic might be attracted to applicants' specialized rail-and-motor service." Messrs. Stillwell and Waters also rejected other protestant contentions that "hybrid" operations (part rail and part motor) have no sanction in the Interstate Commerce Act and require separate certificates, separate tariffs, and separate accounting reports under various parts of the act. "The court decided," the proposed report said in this connection, "that objections based on tariff and accounting matters are not grounds against the grant of a certificate of public convenience and necessity."

Railroad Can Cut Costs—Much of the protestants' evidence related to the cost of the Seaboard's l. c. l. operations, it being contended that such service is operated at a loss and is being "subsidized from carload freight earnings." In that connection, the examiners asked if the railroad should be denied the opportunity to solve this problem by substitution of trucks for rail cars. And they went on to cite *Kansas City S. Transport Co., Inc., Com. Car. Application,* 28 M. C. C. 5 wherein the commission "clearly stated that a railroad should be permitted to substitute a more efficient for a less

(*Continued on page 658*)

Business of Airlines Still on Steep Upgrade

They handled 10.27 per cent of total air and rail passenger traffic in June

Continuing the relative gain which has consistently characterized the development of their post-war business, the domestic airlines in June handled 10.27 per cent of the combined air and rail passenger traffic, excluding commutation. This increase from January's 4.54 per cent is pointed up by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics in the latest issue of its "Monthly Comment," which also notes that the airlines' share of the business during the first six months of this year was 7.48 per cent as compared with 3.43 per cent in last year's first half.

80 Per Cent Over 1945—The proportions are measured in passenger-miles, 562 million of which were performed by the airlines in June as compared with the railroads' total of 4,912 million non-commutation passenger-miles. The relative position of the airlines was better (10.71 per cent) in May when the strike of railroad trainmen and engineers occurred, but the total of that month's airline passenger-miles (513 million) was 49 million less than the June figure. The airlines' traffic in this year's first six months was 80.7 per cent above that of 1945's first half, while the non-commutation passenger-miles of the railroads were down 18.8 per cent.

Airline revenue figures were available only for the first five months of 1946, for which period the total was 60 per cent above that of the comparable 1945 months. In May the airlines collected 21.6 per cent of the combined air and rail passenger revenue, excluding commutation revenue, more than double their January share of 10.36 per cent. The basic airline figures used by the bureau were those of the Civil Aeronautics Board, which is also cited as the source of data showing that the air carriers during this year's first five months had an operating loss, their expenses being 1.5 per cent in excess of revenues. The five-months average revenue per passenger-mile was 4.68 cents or 10.2 per cent less than the 5.21 cents reported for the same 1945 period. Meanwhile, the average revenue per passenger-mile (excluding commutation traffic) of the Class I railroads increased 2.1 per cent—from 1.95 cents in the first six months of 1945 to 1.99 cents in 1946.

Cost of Wage Increases—Before getting into this report on the inroads of the airlines, the bureau had analyzed the effects of the recent railway wage increases, calculating that they made June's average straight time compensation per hour $1.129 or 21.92 per cent above June, 1945's 92.6 cents and 54.66 per cent above June, 1939's 73 cents. The awards were fully reflected for the first time in the June reports of employees, service and compensation. The percentage increases above June, 1945, range from 16.19 per cent for executives, officials

Selected Income and Balance-Sheet Items of Class I Steam Railways

Compiled from 129 reports (Form IBS) representing 133 steam railways
(Switching and Terminal Companies Not Included)

Income Items	All Class I Railways — For the month of June 1946	For the month of June 1945	For the six months of 1946	For the six months of 1945
1. Net railway operating income	$38,080,301	$99,947,374	$152,956,160	$548,526,379
2. Other income	21,626,741	22,590,585	88,316,062	96,249,746
3. Total income	59,707,042	122,537,959	241,272,672	644,776,125
4. Miscellaneous deductions from income	2,378,816	2,734,833	13,495,280	15,424,720
5. Income available for fixed charges	57,328,226	119,803,126	227,777,392	629,351,405
6. Fixed charges:				
6-01. Rent for leased roads and equipment	10,817,335	12,940,023	58,868,111	74,739,178
6-02. Interest deductions[1]	28,889,260	33,118,799	178,613,925	190,116,150
6-03. Other deductions	121,724	111,006	720,750	662,417
6-04. Total fixed charges	39,828,319	46,169,828	238,202,786	265,517,745
7. Income after fixed charges	17,499,907	73,633,298	*10,425,394	363,833,660
8. Contingent charges	2,879,902	3,437,666	17,597,034	19,865,674
9. Net income[2]	14,620,005	70,195,632	*28,022,428	343,967,986
10. Depreciation (Way and structures and Equipment)	28,258,898	27,832,144	170,478,419	165,711,082
11. Amortization of defense projects	821,397	20,194,176	3,917,776	117,720,571
12. Federal income taxes	3,174,017	111,596,766	12,637,925	593,165,704
13. Dividend appropriations:				
13-01. On common stock	16,632,422	9,794,656	83,683,063	79,980,438
13-02. On preferred stock	5,591,614	3,571,713	25,192,795	21,753,059
Ratio of income to fixed charges (Item 5÷6-04)	1.44	2.59	.96	2.37

Selected Asset and Liability Items	All Class I Railways — Balance at end of June 1946	Balance at end of June 1945
17. Expenditures (gross) for additions and betterments—Road	$100,726,520	$99,991,888
18. Expenditures (gross) for additions and betterments—Equipment	117,763,774	139,168,290
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	581,592,418	573,056,418
20. Other unadjusted debits	175,791,588	262,471,779
21. Cash	971,835,015	1,026,019,918
22. Temporary cash investments	1,253,043,135	1,827,283,041
23. Special deposits	186,392,460	207,340,055
24. Loans and bills receivable	454,533	350,763
25. Traffic and car-service balances—Dr.	42,240,204	54,274,536
26. Net balance receivable from agents and conductors	108,122,866	137,232,431
27. Miscellaneous accounts receivable	365,374,635	628,417,821
28. Materials and supplies	610,947,514	605,981,294
29. Interest and dividends receivable	23,760,475	35,752,065
30. Accrued accounts receivable	188,230,303	293,243,496
31. Other current assets	32,582,986	58,723,749
32. Total current assets (items 21 to 31)	3,782,984,126	4,874,619,169
40. Funded debt maturing within 6 months[3]	111,087,810	112,579,272
41. Loans and bills payable	11,054,058	5,354,059
42. Traffic and car-service balances—Cr.	114,803,669	189,805,775
43. Audited accounts and wages payable	485,522,146	425,680,197
44. Miscellaneous accounts payable	185,664,710	213,670,519
45. Interest matured unpaid	63,641,374	70,528,683
46. Dividends matured unpaid	15,895,554	27,014,875
47. Unmatured interest accrued	49,904,162	45,838,100
48. Unmatured dividends declared	18,709,276	18,145,906
49. Accrued accounts payable	187,631,206	215,997,924
50. Taxes accrued	591,209,790	1,629,813,591
51. Other current liabilities	108,069,223	128,375,908
52. Total current liabilities (items 41 to 51)	1,832,105,168	2,970,225,537
53. Analysis of taxes accrued:		
53-01. U. S. Government taxes	457,277,041	1,478,543,039
53-02. Other than U. S. Government taxes	133,932,749	151,270,552
54. Other unadjusted credits	394,451,439	571,809,158

[1] Represents accruals, including the amount in default.
[2] After deductions of the following amounts to create reserves for land grant deductions in dispute: June 1946, $248,189; June 1945, $3,496,737; 6 months of 1946, $1,377,545; 6 months of 1945, $20,853,279.
[3] Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.
* Decrease or deficit.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Sets Argument on Nickel Plate Control of W. & L. E.

The Interstate Commerce Commission will hear oral argument at Washington, D. C., October 28, on the recent proposed report wherein Examiner Ralph R. Molster has recommended conditional approval by the commission of a transaction whereby the New York, Chicago & St. Louis would acquire from the Chesapeake & Ohio 78,145 shares of Wheeling & Lake Erie common stock, thus building its holdings of the latter's voting shares to about 46.9 per cent of the total. The proposed report was reviewed in the *Railway Age* of July 27, page 146.

Robert R. Young, chairman of the C. & O. board of directors, has already issued a public statement protecting against one of the examiner's proposed conditions which would limit the selling price to the amount which the C. & O. paid for the stock—$4,168,388 or $53.34 per share as compared with the $5,470,150 or $70 per share proposed in the application.

Steelman Action Aims to Reduce Subsidy Payments on Coal

Stabilization Director John R. Steelman this week announced plans for the "progressive reduction" and "final termination" of subsidy payments used to offset abnormal transportation costs in the movement of coal to New England and the New York Harbor area. According to the Office of Economic Stabilization, the action will result in the reduction of approximately two-thirds in subsidy payments made on coal received in New England and the New York Harbor area after December 31.

In a directive to the Office of Price Administration and the Reconstruction Finance Corporation, Mr. Steelman ordered that subsidy payments be continued on a "declining scale" until April 1, 1947. As subsidy payments are reduced, he said, the O. P. A. will increase maximum coal prices in the affected areas to the extent found necessary to compensate generally for the reductions.

Army Promotes H. G. Hill

Lieutenant Colonel Howard G. Hill, formerly a mechanical engineer with the Southern Pacific, has been promoted to the rank of colonel in the Corps of Engineers—reserve, the War Department has announced. Colonel Hill, who served as general manager of the United States Military Railway in southern Sicily in 1943, is now in Japan conducting a survey of the Imperial Japanese Government Railway for American general headquarters, after which he will return to Washington, D. C., to resume his practice as consulting engineer on railways.

G., M. & O. Fined $5,000 for Violating Elkins Act

Entering a plea of guilty to five counts of an information consisting of 15 counts which charged violation of the Elkins Act, the Gulf, Mobile & Ohio was fined $5,000 in the United States District Court at Memphis, Tenn., on September 23, it was announced October 16 by Secretary W. P. Bartel of the Interstate Commerce Commission. The remaining 10 counts were nolle prossed.

The information charged the G., M. & O. with failure to observe the provisions of its published tariffc, in violation of Section 1 of the Elkins Act, by failing to assess and collect demurrage on cars detained by it for a shipper at Humboldt, Tenn.

Emergency Board Report

The White House has made public the report of the National Railway Labor Panel emergency board which was appointed on September 18 by Panel Chairman H. H. Schwartz to investigate a dispute between the Atlantic Coast Line and certain of its dining car employees who are represented by the Hotel and Restaurant Employees' International Alliance and Bartenders' International League, American Federation of Labor. The dispute involved a demand for overtime wages at time-and-one-half rates instead of pro rata for work in excess of 240 hours per month, and the board recommended that the demand be met.

Would Leave Seaboard in Trucking Business

Examiners uphold previous I. C. C. approval of its highway service

Rejecting contentions of protesting motor carrier interests, including American Trucking Associations, Examiners B. E. Stillwell and David Waters have recommended in a proposed report that the Interstate Commerce Commission affirm its prior findings to the effect that public convenience and necessity require operation by the Seaboard Air Line of auxiliary and supplemental trucking services over a network of routes sought in 12 proceedings which were reopened for further hearing following the Supreme Court's June 13, 1945, ruling that the commission erred in the previous hearing when it excluded evidence as to the effect of the proposed operations on independent over-the-road truckers. Disposing also of eight other proceedings reopened for that limited purpose, the proposed report there recommended certain modifications of the conditions designed to keep the trucking operations auxiliary to or supplemental of S. A. L. rail service.

All proceedings involved in the proposed report are sub-numbers of the title case, MC-86687, and the whole group of applications cover operations which generally parallel Seaboard rail lines in Virginia, North Carolina, South Carolina, Georgia, and Florida. The proposed report explained further that the network consists of a northern group and southern group of routes, the two groups being unconnected.

Two Route Groups—"Generally speaking," it continued, "the northern group embraces connecting routes which extend from Richmond, Va., on the north, to Columbia, S. C., on the south, and from Wilmington, N. C., on the east, to Rutherfordton, N. C., on the west; and it also includes an unconnected route between Greenwood, S. C., and Great Falls. The southern group embraces connecting routes radiating out of Jacksonville, Fla., to Fernandina on the east, to Chattahoochee on the west, and to Sebring, Tampa, and Clearwater on the south, and includes an unconnected route between Lyons, Ga., and Rhine."

On November 30, 1942, the commission issued a single certificate authorizing operations involved in 14 proceedings (the title case and Sub-Nos. 1-10, inclusive, 15, 18, and 19) and superseding and canceling certificates previously issued in the same proceedings. This decision was attacked in court by A. T. A. and other motor carrier interests, the attack resulting in the Supreme Court's decision mentioned above (see *Railway Age* of June 23, 1945, page 1114). It developed at the further hearing that S. A. L. no longer desired to operate over routes between Gaston, S. C., and Garnett, and McBee and Sumter, which had been sought in the title case and Sub-No. 1; so the examiners recommended dismissal of those applications.

This left for determination 12 applications reopened in their entirety as a result of the court decision; and the commission, meanwhile, reopened the eight others for the limited purpose of considering modification of the conditions restricting truck operations to the auxiliary and supplemental type of service. The latter, mostly in the southern group of routes, are Sub Nos. 21 to 28, inclusive.

Would Tie to L. C. L. Service—In recommending that the commission reaffirm its approval of the operations, with modifications in the conditions, the examiners suggest that a single consolidated certificate be issued to cover all routes involved. Among other stipulations, the conditions included in the proposed single certificate would definitely tie the trucking operations to the railroad's l. c. l. service rather than to freight service generally. In this connection the examiners said that the conditions were intended to apply to l. c. l. service, and they "should be clarified so that this intent will be plainly understood." Thus the recommended conditions are:

1. The service by motor vehicle to be performed by applicants shall be limited to service which is auxiliary to, or supplemental of, their less-carload rail service.
2. Applicants shall not serve any point not a station on their rail line.
3. No shipments shall be transported by applicants as a common carrier by motor vehicle from Richmond to Petersburg, Va., or from Jacksonville to Starke or Ocala, Fla., or between any of the following points, or through or to or from more than one of said points: Richmond, Va.; Henderson, N. C., Raleigh, Hamlet, Wilmington, Charlotte; Columbia, S. C., Greenwood; Jacksonville, Fla., Tallahassee, and Tampa.
4. Such further specific conditions as the commission, in the future, may find it necessary to impose in order to restrict applicants' operations by motor vehicle to service which is auxiliary to, or supplemental of, their less-carload rail service.

Dealing with the evidence which the Supreme Court required to be considered, the examiners said that the protestants' presentation as to the economic effect of the proposed operations on independent motor carriers "fails to show that their operations would be endangered or impaired to any appreciable extent, notwithstanding the fact that some traffic might be attracted to applicants' specialized rail-and-motor service." Messrs. Stillwell and Waters also rejected other protestant contentions that "hybrid" operations (part rail and part motor) have no sanction in the Interstate Commerce Act and require separate certificates, separate tariffs, and separate accounting reports under various parts of the act. "The court decided," the proposed report said in this connection, "that objections based on tariff and accounting matters are not grounds against the grant of a certificate of public convenience and necessity."

Railroad Can Cut Costs—Much of the protestants' evidence related to the cost of the Seaboard's l. c. l. operations, it being contended that such service is operated at a loss and is being "subsidized from carload freight earnings." In that connection, the examiners asked if the railroad should be denied the opportunity to solve this problem by substitution of trucks for rail cars. And they went on to cite *Kansas City S. Transport Co., Inc., Com. Car. Application*, 28 M. C. C. 5 wherein the commission "clearly stated that a railroad should be permitted to substitute a more efficient for a less

(*Continued on page 658*)

Business of Airlines Still on Steep Upgrade

They handled 10.27 per cent of total air and rail passenger traffic in June

Continuing the relative gain which has consistently characterized the development of their post-war business, the domestic airlines in June handled 10.27 per cent of the combined air and rail passenger traffic, excluding commutation. This increase from January's 4.54 per cent is pointed up by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics in the latest issue of its "Monthly Comment," which also notes that the airlines' share of the business during the first six months of this year was 7.48 per cent as compared with 3.43 per cent in last year's first half.

80 Per Cent Over 1945—The proportions are measured in passenger-miles, 562 million of which were performed by the airlines in June as compared with the railroads' total of 4,912 million non-commutation passenger-miles. The relative position of the airlines was better (10.71 per cent) in May when the strike of railroad trainmen and engineers occurred, but the total of that month's airline passenger-miles (513 million) was 49 million less than the June figure. The airlines' traffic in this year's first six months was 80.7 per cent above that of 1945's first half, while the non-commutation passenger-miles of the railroads were down 18.8 per cent.

Airline revenue figures were available only for the first five months of 1946, for which period the total was 60 per cent above that of the comparable 1945 months. In May the airlines collected 21.6 per cent of the combined air and rail passenger revenue, excluding commutation revenue, more than double their January share of 10.36 per cent. The basic airline figures used by the bureau were those of the Civil Aeronautics Board, which is also cited as the source of data showing that the air carriers during this year's first five months had an operating loss, their expenses being 1.5 per cent in excess of revenues. The five-months average revenue per passenger-mile was 4.68 cents or 10.2 per cent less than the 5.21 cents reported for the same 1945 period. Meanwhile, the average revenue per passenger-mile (excluding commutation traffic) of the Class I railroads increased 2.1 per cent—from 1.95 cents in the first six months of 1945 to 1.99 cents in 1946.

Cost of Wage Increases—Before getting into this report on the inroads of the airlines, the bureau had analyzed the effects of the recent railway wage increases, calculating that they made June's average straight time compensation per hour $1.129 or 21.92 per cent above June, 1945's 92.6 cents and 54.66 per cent above June, 1939's 73 cents. The awards were fully reflected for the first time in the June reports of employees, service and compensation. The percentage increases above June, 1945, range from 16.19 per cent for executives, officials

and staff assistants, to 28.33 per cent for the maintenance of way and structures group; while the increases over June, 1939, range from 23.52 per cent to 78.02 per cent, the same two groups being in the extreme positions.

Although this year's increases granted to most employees amounted to 18.5 cents per hour, the figures indicate that for all employees the difference between the average hourly compensation in June, 1946, and 1945 is 20.3 cents. In explanation of this the bureau notes that in June, 1946, employment was 8.52 per cent below that of the previous June. "When forces are reduced," it adds, "the supervisors and employees with seniority rights who are retained in service are likely to be in pay brackets which are higher than those of the employees laid off. Attention is also called to the fact that June, 1946, had one less working day than June, 1945. This would tend to raise the average hourly compensation of employees paid on a monthly basis whose time and compensation have been included in the table. If the average straight time compensation is confined to all employees whose time is reported on an hourly basis, the June figures would be as follows: 1946, $1.088; 1945, $0.894; 1939, $0.694."

Another tabulation setting up railway traffic units (revenue ton-miles plus twice revenue passenger-miles) per hour paid for and per dollar of wages shows respective drops of 10 per cent and 25.1 per cent between June, 1945, and June, 1946. In other words, the June, 1946, traffic units per hour paid for amounted to 207 as compared with 230 in June, 1945, while the respective figures for traffic units per dollar of compensation were 179 and 239.

The bureau's comment on the figures calls attention to the fact that June's average of 179 traffic units per dollar of compensation is "far below the prewar level." In the latter connection the table shows a 1939 figure of 203, a wartime peak of 256 in 1943 and a 1945 figure of 224. Meanwhile June's average of 207 traffic units per hour paid for is "much higher than the averages of the prewar years," comparing as it does with 1939's 152 and 1940's 161. It is, however, below 1943's wartime peak of 237 and the 1945 figure of 217.

Operating Ratios—The bureau's usual analysis of the latest monthly financial reports notes that August's operating ratio of 78.3 was up 5.8 percentage points from August, 1945. Later on there is included considerable discussion of regional operating ratios, it being pointed out that they "varied considerably." August freight revenues of the Class I roads were 6.4 per cent above July and only 0.2 per cent below August, 1945. Passenger revenues were down 0.2 per cent from the previous month and 26.8 per cent below August, 1945. The August freight revenue index (based on the 1935-1939 monthly average as 100) was 203.4, compared to July's 191.2 and August, 1945's 204. The passenger revenue index was 320.1, compared to July's 320.9 and August, 1945's 437.6.

The bureau puts the net income for the 12 months ended with August at $42,029,000, calling attention to the fact that this black figure was due to federal income tax credits of $395,236,000 which more than offset the $353,207,000 deficit before taxes. The August reports of the Class I roads showed for the first time a segregation of the credits for federal income taxes accrued in 1946, and the bureau calculates that the total for the eight months was $60 million. This includes $44,720,000 in excess profits tax carry-backs, $13,615,000 in net operating loss carry-backs, and $2,054,000 in other income tax credits.

The effect of these 1946 tax credits on the eight-months net railway operating income by regions is shown in a table which reveals that without such credits the New England region would have had a net operating deficit, while the net railway operating incomes of the Great Lakes, Central Eastern, Northwestern, and Central Western regions would have been much less than the reported figures. The table's figures on "per cent tax credit of reported net" show a range from 1.1 per cent in the Pocahontas region to 284.5 per cent in the New England region. The composite percentage for all regions was 20.2 per cent.

Data presented on the condition of railway equipment show that on July 31, the number of unserviceable yard, freight, and passenger locomotives was higher than on the same date in 1945, the percentage of unserviceable units in each case being up more than two percentage points. The unserviceable locomotives as of July 31 were: Yard switching locomotives, 11.5 per cent; road freight locomotives, 16.7 per cent; road passenger locomotives, 16.3 per cent. In the case of both freight cars and passenger-train cars, the increase in "per cent unserviceable," July 31, 1945, compared to July 31, 1946, was less than one percentage point, the July 31, 1946, figures being: Freight cars, 4.3 per cent; passenger-train cars, 6 per cent.

Comparing July, 1946, with July, 1939, the bureau says that the condition of rolling stock from the standpoint of serviceableness was "much better" in the current year, "despite the intensive utilization of equipment during the war." It adds that "traffic requirements were, of course, much heavier in July, 1946."

Loadings Forecast—The usual discussion of the freight traffic outlook points out that the Production and Marketing Administration of the Department of Agriculture has estimated that grain and grain products car requirements for October average 55,180 cars weekly, as compared with actual loadings of 55,800 cars per week in October, 1945. "P. M. A.," the bureau adds, "believes its October estimate, as well as its November estimate of 54,150 cars weekly, is attainable."

With respect to livestock loadings, P. M. A. had estimated that loadings would average 25,050 cars weekly in October, 23,300 in November, and 16,700 in December. Presumably these estimates will have to be revised as a result of President Truman's action lifting price controls on meat, for they assumed "a continuation of present conditions of price control." October loadings of "perishable" commodities that normally would use refrigerator cars are estimated by P. M. A. at 218,300, which is 20,000 cars more than moved in September.

"All types of equipment remain in tight supply," the bureau says in summing up. "Refrigerator and stock cars, where supply has been adequate, if not ample, recently, are expected to be in short supply in the near future. Gondola cars are in such demand that the normal allotment for sugar beet movement, which begins in October, has been cut."

Data presented on trends of gross ton-miles per train-hour in freight and passenger service show that the output per passenger train-hour increased at a much greater rate from 1937 to 1945 than did the corresponding factor of freight-train performance. The bureau attributes this to the greater rate of increase in the speed and gross load of passenger trains. In 1937 the passenger gross ton-miles per train-hour of 17,357 were equivalent to 57.2 per cent of the freight average of 30,349. In 1945, the passenger average had increased 36.9 per cent over 1937 as compared with 21.8 per cent for the freight average. As a result the passenger average of 23,762 g. t. m. per train-hour in 1945 rose to 64.3 per cent of the freight average of 36,954.

For the first seven months of this year, the freight g. t. m. per train-hour (36,689) were 2 per cent under the comparable 1945 period, while the estimated passenger average (23,730) was up 1.2 per cent, being 64.7 per cent of the freight level.

C. & O.-P. M. Start Low-Cost Excursions for Youth

A low-fare excursion train for boys, the first in a plan of the Chesapeake & Ohio and Pere Marquette to furnish inexpensive travel opportunities for boys' organizations, left Detroit, Mich., for historic Virginia localities on October 15, with approximately 300 boys aboard. According to the road's announcement, fares charged for the trip, including meals and all accommodations, amounted to about ¼ cent per mile. The two roads plan to conduct a number of similar tours next summer.

Navy Commends Express Officer

Claude W. Turner, who throughout the war was manager of government express transportation for the Railway Express Agency at Washington, D. C., has been presented with a Letter of Commendation by the Navy Department in recognition of his services in war-time transportation. Mr. Turner was appointed to that post early in 1942, following requests by the Army, Navy and other federal agencies to make available the full facilities of the R. E. A. He became chief liaison officer for the company in expediting government war shipments, and was called upon to provide expedited movement on trains and planes of vitally urgent shipments to and from army and navy posts and war production centers.

Swedish Railway Commission Touring U. S.

Four high-ranking officers of the Swedish State Railways are currently touring the United States to study American railroad practices and manufacturing facilities for railroad supplies and equipment. Three members of the party—G. O. V. Dahlbeck, general manager; T. Ringquist, chief mechanical engineer and Thorsten Thelander, chief engineer, have passed through Chi-

cago on a trip that will continue to Albuquerque, N. M., via Duluth, Minn., St. Paul, Seattle, Wash., Portland, Ore., San Francisco, Cal., and Los Angeles. At Albuquerque the official mission of the party will be completed.

In addition, B. T. Berger, general freight traffic manager of the state system, is following a separate itinerary through the country, calling upon railroad traffic and operating departments. All four expect to embark for Sweden on November 4. Mr. Dahlbeck told the *Railway Age* that he was particularly interested in obtaining information regarding the design and maintenance of Diesel or Diesel-electric switching locomotives.

25% Service Charged Placed on Uncancelled Plane Tickets

A service charge of 25 per cent of one-way fares has been placed on domestic airline tickets not cancelled by flight departure time, it was announced this week by the Air Transport Association of America, representing the scheduled airlines of the United States. The new rules, effective October 15, follow the introduction of the Pullman company's new redemption regulations on August 1, as reported in *Railway Age*, July 6, page 26.

A. T. A. also announced that as a "second phase" of a program "designed to provide more airline seats by alleviating the 'no show' passenger problem," all domestic carriers will now require airline patrons who do not intend to make use of remaining portion of their tickets to pay the 25 per cent service charge unless they notify the airline upon which their next departure is scheduled by the actual departure time of the flight. The passenger may inform the airline of his intention not to use the ticket either in person, by telephone, telegraph or mail, providing the information reaches the airline office in the city from which the departure was to be made, prior to the departure time of the flight.

The association said that the "first phase" of the airlines' "no show" program "merely requires the passenger to inform the airline office in the city from which his departure is scheduled a specified number of hours prior to departure of his intention to use the reservation he had previously made." Failure to so inform the airline office results in the right of the airline to automatically cancel his reservation and resell the space.

In cases where 25 per cent of the one-way fare for the remaining portion of any passenger ticket not properly cancelled reaches a figure less than $2.50, the service charge applicable under the new ruling will be $2.50, or if the total one-way fare in question is less than $2.50, the service charge will be the total amount of the fare.

Refrigeration and Air-Conditioning Exposition, Oct. 29 - Nov. 1

Displays of the latest developments in air-conditioning systems for passenger cars, refrigeration equipment for the preservation of food in diners and station restaurants, new machinery for equipping railroad refrigerator cars and such other refrigerating equipment as drinking-water coolers will be among the total of 300 industry displays at the fourth All-industry Refrigeration and Air-Conditioning Exposition, to be held in the Public Auditorium at Cleveland, Ohio, October 29 to November 1, inclusive. Sponsored by the Refrigeration Equipment Manufacturers' Association, with the cooperation of the Frozen Food Locker Manufacturers and Suppliers Association, exposition displays will cover 75,000 sq. ft. of floor space.

Plans of the more than 160 companies numbered among the exhibitors indicate that many will have displays of products especially built for, or adapted to, the transportation field. Featured among the show exhibits will be portable refrigerated containers which may be loaded with fresh or frozen food at source, transported in railroad cars or trucks, unloaded at retail stores, and their contents sold direct to consumers.

N. W. Shippers Plan Meeting

The Northwest Shippers Advisory Board, at its quarterly meeting on October 31, at Fargo, N. D., will hear reports on freight car needs in that area, by R. E. Clark, manager of the Closed Car section of the Association of American Railroads, and C. W. Taylor, manager of the association's Refrigerator Car section. Chester C. Thompson, president of American Waterways Operators, Inc., will discuss the national transportation inquiry being conducted by the house committee on interstate and foreign commerce.

Johnson Prefers Certificate 44 to Present "Assurances"

Director Johnson of the Office of Defense Transportation is demanding reinstatement of Certificate 44 under which railroads and other carriers regulated by the Interstate Commerce Commission were accorded wartime immunity from the anti-trust laws with respect to operations of their rate bureaus and other joint-action arrangements. The O. D. T. director is understood to have represented to Director Steelman of the Office of War Mobilization and Reconversion that reinstatement of the certificate is the legal and "dignified" course for the government to follow.

The certificate, originally issued by the chairman of the former War Production Board, was allowed to expire on October 1 by Director Small of the Civilian Production Administration, who relied principally on Department of Justice contentions that the rate bureaus "can function effectively without violating the anti-trust laws." Subsequently, J. Carter Fort, vice-president and general counsel of the Association of American Railroads, received from Attorney General Clark and other Department of Justice officials what Mr. Fort regards as satisfactory assurances that the railroads "may continue the normal and customary rate bureau and rate conference practices while the Georgia anti-trust suit is pending, without fear of additional suits by the government based upon such practices during such period" (see *Railway Age* of October 12, page 609).

Colonel Johnson stated on October 16 that the Department of Justice had not up to that time advised him of the understanding reached with Mr. Fort. Meanwhile it is understood that the O. D. T. director's insistence that Certificate 44 be reinstated is based on his feeling that the "assurances" method of handling the matter is "undignified" in that the government should be a stickler for legal forms while the carriers should not be forced to rely on the tolerance of a government official. Moreover, Colonel Johnson has also pointed out that the railroads on whose behalf the "assurances" have been received are not the only carriers which were accorded immunity by the certificate.

Dining Car Food and Beverages Exempted from Price Control

Prices for meals, individual food items and beverages served on railroad dining cars, cafe cars or club cars were exempted from price control by the Office of Price Administration, effective October 11. The exemption does not apply to the sale of sandwiches, milk and other individual food items and drinks by train peddlers or to sales at railroad station news stands operated by a firm or individual also peddling food items and drinks on trains.

According to the O.P.A., railroads have shown that they are losing substantial amounts of money on their dining car operations. It said that the price increases that are required under law to grant are greater than the railroads indicated they would put into effect if price controls were eliminated. Dining car prices have been frozen since July 1, 1943, at the highest prices in effect from February 1, 1943, to April 10, 1943. The O.P.A. added that "some price relief," similar to that already allowed restaurants, is being provided train peddlers.

I. C. C. Lets H. & M. Charge Straight 10-cent Fare

Making its third report on further hearing in the I. & S. Docket No. 4394 proceeding, which involves Hudson & Manhattan fares, the Interstate Commerce Commission has now authorized that road to abandon its token plan and charge on a permanent basis a straight 10-cent fare between Jersey City, N. J., and Hoboken and points on both its uptown and downtown lines in New York. The present fare, limited to the period ending six months after the legal termination of the war, is on the alternative basis of 11 tokens for $1 or a cash fare of ten cents, payable by a dime.

It has been in effect since June, 1944, as authorized in the commission's second report in the proceeding which was sustained by the United States Supreme Court. Prior to that time the fare was 8 cents on the downtown line, having been increased from 6 cents as approved in the proceeding's original report of 1938, and 10 cents on the uptown line, as approved in 1920. The present report is the result of a petition wherein the road asked for the modifications now made in the previous orders.

The commission found that the modifications would produce some additional net

income, although the anticipated annual net would still be about $108,000 short of interest requirements. Also, it stated that the "overwhelming majority" of the passengers had "demonstrated their increasing preference for straight dime fares as against the present lower alternative token basis." In this connection the report had discussed figures showing that in 1945 only 18.51 per cent of the passengers used tokens; and the average fare paid during that year was 9.832 cents.

Although the railroad had not asked for a fare higher than 10 cents, the commission's findings include this pronouncement: "Under present conditions and so far as can be foreseen, a local interstate fare of 10 cents is the maximum that can be charged on either the uptown or the downtown line, and any greater fare would probably return to respondent less revenue, or at least no greater revenue, than a 10-cent fare."

Union Asks Installation of Steel Pilots with Retractive Couplers

Contending that devices now in use on a large number of locomotives "lack sufficient strength" and are "deficient in design," the Brotherhood of Locomotive Firemen and Enginemen has filed a petition with the Interstate Commerce Commission in which it has asked the commission to issue an order requiring the railroads to install "substantial" cast steel pilots with retractive couplers on all locomotives operated in road service.

According to the union's president, D. B. Robertson, who filed the petition, such an order would help cut down the toll of "life and limb" and property damage, particularly in grade crossing accidents. He stated that obstacles struck at grade crossings or elsewhere "frequently are not thrust from the path of the engine and train" but become wedged under the engine trucks and wheels, thereby resulting in derailments.

The petition also noted that when locomotives are equipped with "substantial pilots with retractive couplers," accidents to persons on the locomotive and train and to the train itself are "mitigated or prevented."

New Haven Charged with Anti-Trust Law Violations

The New York, New Haven & Hartford's arrangements for the handling of fruits and vegetables shipped into Boston, Mass., have resulted in its being named among defendants in an anti-trust suit filed in the federal district court there on October 15 by the Department of Justice. The suit charges the railroad, the Boston Market Terminal Company and various friut and vegetable distributing companies and their officers ("defendant consignees") with conspiring, as the Department of Justice announcement put it, "to monopolize the transportation and sale of fresh fruit and vegetables within the New England area in violation of the Sherman anti-trust act."

The complaint alleged that 75 per cent of the rail shipments of fruits and vegetables into Boston arrive via the New Haven, "which has leased its Boston market terminal to the Boston Market Terminal Company." It asked that the railroad be required to divest itself of all its interest in the market, and that the market be opened to any person desiring to use its facilities.

Under the present set-up, the complaint charged: "(1) that the defendant consignees, members of the Boston Market Terminal Company, have agreed to use the defendant railway exclusively and have agreed to refrain from using other railroads or motor carriers for the transportation of fruit and vegetables into Boston; (2) that the defendant consignees have the exclusive use of the facilities of the Boston Market Terminal Company to receive fruit and vegetables and deny access to non-members and others."

Indianapolis Station to House Permanent Industry Exhibit

The concourse of the Union station at Indianapolis, Ind., will be the setting for a permanent Indianapolis Industrial Exhibition, to be opened November 7 with elaborate ceremonies in which executives of railroads and participating industries will take part. The dedicatory activities will conclude with a dinner at the Claypool hotel.

The 74 exhibits will be displayed in cases of polished aluminum and glass, simulating modern streamlined passenger cars. It is expected that some four million persons will pass through the exhibit area yearly, and displays employing color and motion have been arranged to focus attention on the industrial achievements of the Indianapolis area. The formal opening will mark the success of an idea developed in the Indianapolis Chamber of Commerce during the presidency of E. S. Pearce, president of the Railway Service & Supply Company.

Railroad Radio Program in St. Louis

What is ahead for the nation's railroads and what the railroads serving St. Louis are doing and planning to improve that city's position will be discussed over Station KXOK in St. Louis on October 22, from 8:00 to 8:30 p.m. on the "Wake Up St. Louis" program. This radio forum will be presented in connection with the 10th annual meeting of the National Association of Shippers Advisory Boards in St. Louis on that day.

Those who will be heard on the broadcast are Carl Giessow, of St. Louis, vice-president of the National Association of Shippers Advisory Boards and director of the Transportation Bureau of the St. Louis Chamber of Commerce; Robert S. Henry, assistant to the president of the Association of American Railroads; and Albert R. Beatty, manager of the Press and Radio Section of the A. A. R. Bruce Barrington, KXOK news editor, will act as moderator.

South Dakota Orders Free P. & D. Service

Free pick-up and delivery service on less-carload traffic on which rates of less than 50 cents per 100 lb. are applicable was ordered restored, effective on or before October 20, by the South Dakota Public Utilities Commission in its supplemental order F-2147, dated October 7. The commission's action arises from a petition of the Traffic Bureau of Sioux Falls protesting its granting, on June 24, the rail carriers authority to publish the same increases on South Dakota intrastate traffic as the Interstate Commerce Commission authorized on interstate traffic in its decision of June 20. Among the I. C. C.'s findings was one prohibiting free pick-up or delivery services or allowances on traffic on which the line haul rate is less than 50 cents per 100 lb.

Accounts for Those Furnishing Cars or Protective Services

Division 1 of the Interstate Commerce Commission this week made public a May 7 order prescribing a uniform system of accounts for persons furnishing railroads or express companies with cars or protective (temperature-control) services for perishable freight. The order becomes effective January 1, 1947.

August Truck Traffic

Motor carriers reporting to American Trucking Associations transported in August 2,008,924 tons of freight, an increase of 9.7 per cent over the 1,831,160 tons transported in July and an increase of 13.9 per cent above the August, 1945, total of 1,763,476 tons. The A. T. A. index figure, based on the 1938-40 average monthly tonnage of the reporting carriers, was 204 for August—"the highest for any month thus far this year, and the highest figure for the month of August since A. T. A. began keeping records in 1937."

The foregoing figures, according to the A. T. A. statement, are based on comparable returns from 202 truckers in 37 states. Carriers in the Eastern district reported tonnage increases of 10.7 per cent above July and 16.1 per cent above August, 1945. In the Southern region, the respective increases were 13.1 per cent and 10.6 per cent, while in the Western district they were 5.6 per cent and 10.4 per cent.

Car Service Orders

Service Order No. 624 has been issued by the Interstate Commerce Commission to establish a permit system governing the movement of export grain to North Atlantic ports whether consigned to an elevator or for direct delivery to a vessel. Under the order, effective from October 14 until January 1, 1947, unless otherwise modified, A. S. Johnson, assistant director, Railway Transport Department, Office of Defense Transportation, is named I. C. C. agent with authority to appoint elevators or delivering carriers in the port areas as permit agents.

Service Order No. 625, effective from October 14 until December 14, unless otherwise modified, prohibits the peddling of wine and grape juice from freight cars. The order is similar to former Service Order No. 153.

Revised Service Order No. 558 and its Amendment No. 1 stipulates that the railroads shall furnish only refrigerator cars unsuitable for fruit and vegetable loading under the order's provisions authorizing the furnishing of two or three reefers in lieu of box cars ordered for shipments of fruit and vegetable containers and box shooks

from origins in California and Oregon to destinations in California. The previous order expired on October 10, but the revision, effective on that day, will remain in effect until December 20 unless otherwise modified.

Amendment No. 3 to Service Order No. 434 exempts box cars on hand at Gulf ports at 7:00 a.m., October 16, from the orders provisions which restrict the free time on box cars held for unloading at ports to a maximum of seven days. The regular tariff provisions will apply on the cars involved. General Permit No. 4 under Service Order 422 authorizes the railroads to disregard, as to cars which arrived at Atlantic, Gulf, and Pacific ports after 12:01 a.m., August 24, the orders provisions requiring that cars on hand 10 days be unloaded forthwith where the unloading is a railroad responsibility. The permit expires October 31.

New Contract Settles Long Island Dispute

(*Continued from page 652*)

short turn-around assignments and accelerate the beginning of overtime." The present board concurred in that view. It went on to suggest that the parties agree upon an arbitration of the matter, to be concluded before May 25, 1947, "should intermediate negotiations fail to eventuate in agreement."

The employees, it added, were willing to enter into such an agreement, but the carrier declined at this time to do so.

"The organization, therefore," the report continued, "has available to it the right to proceed under the Railway Labor Act, formulating and presenting its demands sufficiently in advance of May 25, 1947, to permit their being disposed of by negotiation and mediation and, if these fail of results, we recommend arbitration; failing all these, an emergency board not trammeled in its recommendations by the present restrictions of the stabilization program would be available."

Union Claims Gains—J. Earle Kelton, chairman of District 50's scale committee, was quoted as saying that all the rule changes would mean time and money to the train employees involved. Among points covered by the new rules he mentioned were: (1) race trains run during track seasons are to be considered as special trains, which must be manned by men who do not have regular runs; (2) a worker's finishing terminal will now be the one from which he starts; (3) deadheading to the point where an employee's work begins next day will entitle him to a full day's pay for such deadheading; and (4) men will be paid for the time required for physical and promotional examinations.

The six major issues which the union had emphasized in its arguments before the emergency board were held in abeyance.

They included a reduction in the basic mileage after which overtime is paid; sick leave with pay; a basic eight-hour day; increased vacations with pay; one day off in every seven and time and one-half for overtime.

Will Review Class-Rate and Pullman-Sale Cases

The Supreme Court of the United States this week agreed to review the decision of the special three-judge federal court which last May upheld the Interstate Commerce Commission's interim order in the No. 28300 class rate case, and last January's decision of another three-judge court which approved sale of the Pullman Company's sleeping-car business to the so-called railroad "buying group." The lower court which passed on the class-rate case sat at Utica, N. Y., while the Pullman case was heard in Philadelphia, Pa.

The commission's rate order, which has been attacked by northern states and several western railroads, provides that class rates in the South and West (except in the territory west of the Rocky Mountains) shall be reduced 10 per cent and that Official Territory class rates shall be increased 10 per cent, pending the development of a new uniform class rate structure in conformity with the decision's other findings. In upholding the commission, the Utica court enjoined establishment of the interim adjustment, pending the losing parties' appeal. The commission sought unsuccessfully to have the Supreme Court dissolve that injunction.

The Philadelphia court's approval of the sale of Pullman's sleeping-car business to the railroad group was appealed by the Department of Justice and others, including the Chesapeake & Ohio, New York, Chicago & St. Louis, and Pere Marquette. The proposed sale is the aftermath of the successful anti-trust action against the Pullman companies, Pullman, Incorporated, having elected to sell the operating business and retain Pullman-Standard Car Manufacturing Company.

In other orders entered this week, the Supreme Court also agreed to review a railroad tax case (Atlantic Coast Line v. Thompson) which involves the right of Georgia to assess a deficiency income tax with respect to A. C. L. income from the main line of the Georgia Railroad and its Athens branch. The railroad, which lost in the lower court, claims that the income involved is exempt from the income tax under provisions of the Georgia's 1833 charter.

The court granted a petition for a writ of certiorari in Walling v. Nashville, Chattanooga & St. Louis and Portland Terminal Company, which involves the status of trainees under the Fair Labor Standards Act. The lower court has upheld the railroads' contentions that trainees are not employees within the meaning of the act. Certiorari was also granted in Northern Pacific v. United States, which involves the application of land-grant rates. The lower court has rejected the railroad's contention that the traffic involved was not military traffic moving for military use.

Rodgers Plans to Retire from A. T. A. Presidency

Ted V. Rodgers, president of American Trucking Associations, Inc., since it was organized in 1933, will retire from that position upon completion of the new 12-months term for which he was reelected at A. T. A.'s recent convention in Chicago. Mr. Rodgers announced his retirement plans to the convention after it had reelected him unanimously.

He explained that his decision was based on his desire to spend more time at his home in Scranton, Pa., with his wife who has been in poor health. Mr. Rodgers is 58 years of age. A Scranton truck operator, he was president of the Pennsylvania Motor Truck Association prior to the organization of A. T. A.

Canadian Roads Ask 30% Rate Increase

(*Continued from page 652*)

operating lines in Canada and who are members of the association had, with approval of the National War Labor Board, granted to their Canadian employees wage increases starting January 1, 1946, similar to those awarded their American employees. With like approval, Canadian railways granted a general wage increase to all occupational classifications of their employees, except trainmen, amounting to 10 cents per hour retroactive to June 1, 1946.

Seven other member companies of the association now were faced with an application for similar increases in the wages of their Canadian employees.

An application had been filed with the National War Labor Board on behalf of the trainmen's organization for an increase in wages of 25 per cent. This application affected nine of the association's member companies, including the Canadian National, Canadian Pacific and the Ontario Northland.

The association's submission states that, assuming the trainmen's application will be disposed of on the basis of the 10-cents-an-hour awarded the other employees of the two member roads referred to, and that all the other member companies are required to grant similar increases in wages to all their employees, retroactive to June 1, there will have been added to the 1946 operating payroll of all the companies affected an additional amount of $23,200,000.

Such an increase would amount for a full 12-months period at the 1946 employment level to $40,300,000.

The application concludes:

"The increase in tolls or rates sought by the application is based entirely on present costs including the pending increase in wages of 10 cents an hour but does not take into consideration any increase in wages or costs with which the railways may be faced hereafter."

The association in its submission said railways had been operating under rigidly controlled rates which in most cases dated back to 1922. Apart from the recent 10-cent increase operating costs for 1946 would be $132,000,000 above 1939.

"The decline in railway gross earnings which commenced to be substantial in the latter part of 1945 has progressively continued into 1946 and such decline has not been nearly matched by a corresponding decline in working expenses," the association said. "The result has been an exceedingly serious decline in railway net earnings."

State Grants C. A. & E. Fare Increase in One Day

A petition for a 10 per cent increase in commutation fares on the strike-bound Chicago, Aurora & Elgin was received, heard and granted on the same day—October 15—by the Illinois Commerce Commission. This speedy action permitted the road to settle a wage dispute with its employees, and to restore operations on the following day.

The agreement entered into by the road, the Illinois Commerce Commission and the Brotherhood of Railroad Trainmen provides than an 18½ cents an hour raise shall be retroactive to September 1, and back pay of 14½ cents an hour shall be given from January 1 to August 31. Throughout the strike, the C. A. & E. had maintained that its present income would permit wage increases amounting to only 14½ cents per hour.

In asking for the increase in fares, Arthur L. Schwartz, president, said that the road had a net income of $120,141 for the first eight months of 1946, but that if the 14½ cents an hour wage increase offered by the company had been in effect during that period, the road would have suffered a deficit of $23,828. A deficit of $63,544 would have resulted, he added, if the 18½ cents an hour wage increase had been in effect for the same period. He estimated that the proposed fares increase would have yielded $74,620 additional revenue for the eight-month period, leaving $50,792 as net income, if wages had been increased 14½ cents an hour, and $11,076 income if they had been 18½ cents an hour higher.

Hearing on Santa Fe Plan for New Route into St. Louis

Interstate Commerce Commission hearings will open November 12 at the Coronado Hotel, St. Louis, Mo., on the joint application filed by the Atchison, Topeka & Santa Fe and the Chicago, Burlington & Quincy for approval of a plan whereby the Santa Fe would obtain use of a direct line between Kansas City, Mo., and St. Louis, while the Burlington would shorten its Chicago-Kansas City route by about 22 miles. The hearings will be before Assistant Director Boles of the commission's Bureau of Finance.

Part of the proposed new set-up, which was described in the *Railway Age* of June 29, page 1278, would involve acquisition by the applicants of the properties of the Kansas City, St. Louis & Chicago from the Gulf, Mobile & Ohio which is getting them in connection with its acquisition of the Alton. In this connection, the St. Louis hearing will also embrace a G. M. & O. application for approval of certain trackage rights over lines of the K. C., St. L. & C., which it proposes to reserve when it sells that property to the Santa Fe and Burlington.

"Husking Bee" Makes Second Run

The New Haven's "Husking Bee" train will make its second trip of the season on October 26, leaving Grand Central Terminal, New York, at 3:20 p.m., and arriving in Kent, Conn., at 5:50 p.m., with way stops to pick up passengers at 125th street, Stamford, Conn., and South Norwalk. In Kent, the passengers, after a New England baked bean dinner, will participate in a corn-husking contest and country dancing. The return trip will start at 10:40 p.m. and stops will be made at all stations from Norwalk and South Norwalk to Mount Vernon, N. Y., inclusive. The train will arrive at Grand Central at 1:12 a.m. Including railroad fare, the entire cost of the trip will be $5.

Forecasts Regional Shifts in Post-War Traffic

Official Classification Territory will fail to maintain its 1939 relative position as an originator of carload traffic during the three post-war years 1946-48, according to the preview of a study entitled "Regional Shifts in Post-War Traffic of Class I Railways," which has been prepared in the Interstate Commerce Commission's Bureau of Transport Economics and Statistics. The preview appeared in the latest issue of the bureau's "Monthly Comment on Transportation Statistics," but the study itself has not yet been released.

The "Comment" explained that it will present two possible patterns of the territorial distributions of tons of freight originated for the years 1946, 1947, and 1948. One of these patterns is based on a projection of the actual originations by territories for the years 1937-44. The other is the same projection "adjusted for the estimated maximum effect on tons originated resulting from the utilization of facilities constructed during the war."

The territorial estimates of the originations are constructed on the basis of three different levels of national income. The "Comment" preview presented the accompanying table, the estimated relatives of which are "those for an intermediate national income level which would be associated with about three million unemployed."

Great Lakes Grain Shipments Restricted by O. D. T.

Because of the shortage of American vessels to move cargoes of grain, coal and ore between ports on the Great Lakes before the closing of the navigation season, the Office of Defense Transportation this week prohibited the movement of Great Lakes grain shipments in American vessels from points outside the United States.

The action, taken in General Order ODT 67, became effective October 15. It does not apply to shipments of grain transported in American vessels from Fort William, Ontario, to Duluth, Minn., or Superior, Wis.

Would Leave Seaboard in Trucking Business

(Continued from page 653)

efficient means of service." There were also contentions that S. A. L.'s truck-operating costs were higher than those of the over-the-road truckers; but the railroad urged that such a comparison was without significance since its operations primarily involve short hauls, and it has a common-carrier duty to transport l. c. l.

The "true basis of comparison," according to the Seaboard is the relative cost of furnishing the service by rail or by truck. Its evidence in that connection showed that the annual net economy on the routes involved in the 12 proceedings reopened in their entirety amounts to $46,503, i. e., rail savings of $171,116 less truck operating costs of $124,613. Also, the railroad stated that it had given consideration to the performance of a coordinated service through the use of independent motor carriers instead of through its own trucking operations, but concluded that such an arrange-

Percentage Distribution by Rate Territories of Tons Originated (1939 Actual and 1946-48 Estimated)

Year	United States	Territories: Official	Southern	Western Trunk-Line	South-western	Mountain-Pacific
		Products of Mines				
1939	100.0	68.4	12.7	11.9	3.2	3.8
Projection of 1937-44 tons originated:						
1946	100.0	64.2	12.8	14.5	4.6	3.9
1947	100.0	62.3	12.5	15.7	5.4	4.1
1948	100.0	61.5	12.5	16.2	5.7	4.1
Projection of 1937-44 tons originated (adjusted)*:						
1946	100.0	65.6	12.2	12.2	5.4	4.6
1947	100.0	64.6	12.0	12.3	6.3	4.8
1948	100.0	64.4	11.9	12.3	6.5	4.9
		Manufactures and Miscellaneous				
1939	100.0	64.6	8.6	9.7	9.4	7.7
Projection of 1937-44 tons originated:						
1946	100.0	62.5	9.3	9.0	11.2	8.0
1947	100.0	60.3	9.7	8.9	12.4	8.7
1948	100.0	59.1	9.9	8.8	13.1	9.1
Projection of 1937-44 tons originated (adjusted)*:						
1946	100.0	57.6	7.7	9.3	16.4	9.0
1947	100.0	56.5	7.5	9.2	17.6	9.2
1948	100.0	56.0	7.5	9.2	18.0	9.3
		All Carload Traffic				
1939	100.0	59.6	11.9	14.3	6.1	8.1
Projection of 1937-44 tons originated:						
1946	100.0	56.1	11.8	16.6	7.6	7.9
1947	100.0	54.9	11.9	16.8	8.3	8.1
1948	100.0	54.2	12.0	16.8	8.7	8.3
Projection of 1937-44 tons originated (adjusted)*:						
1946	100.0	55.4	11.0	15.4	9.6	8.6
1947	100.0	55.0	11.0	15.0	10.3	8.7
1948	100.0	54.9	11.0	14.8	10.5	8.8

* In accordance with estimated postwar utilization of war facilities.

ment would be "thoroughly unprofitable." In summing up its review of the evidence, the proposed report had this to say:

"A careful and studied appraisal of applicants' evidence, on the one hand, against protestants' evidence, on the other, warrants the conclusions that the proposed service is of a different character from that of the protesting motor carriers and is not directly competitive with the present motor carrier service or unduly prejudicial to the existing motor carriers; that the proposed operations will serve a useful public purpose, responsive to a public demand or need; that this purpose can and will be served better by applicants than by existing motor carriers; and that it can be served by applicants without endangering or impairing the operations of existing carriers contrary to the public interest. . . . Applicants are fully qualified to conduct the proposed operations and should be granted authority subject to the [recommended] conditions."

Dixie-Ohio Rule Applied—Other matters dealt with in the proposed report were the "duplicate operations" of the Railway Express Agency and the contractual arrangements under which R. E. A. has been conducting operations for the Seaboard over two routes. The "duplicate operations" are on two short R. E. A. routes included in routes involved in the S. A. L. applications. Of this situation the examiners said: "Since it is not the policy of the commission to grant duplicate operating rights to closely affiliated carriers for the same operation, the Express Agency and applicants should give consideration to the elimination of any duplication that may arise upon the issuance of authority as proposed herein."

With respect to the two routes operated by R. E. A. under contract with Seaboard, the report reminded the applicants that such arrangements must conform to the *Dixie-Ohio Case* rule which stipulated in effect that where a carrier uses the vehicles of others, such use must be under the carrier's direction and control and under his responsibility to the shipper and the general public.

New Haven Ad Campaign Points Up Rail Travel Advantages

The first advertisement in a newspaper campaign designed by the New York, New Haven & Hartford to call attention to the major advantages of travel by rail—dependability, comfort and safety—has appeared in newspapers in the territory covered by the road. Reproduced herewith, the advertisement indicates the New Haven's intention to combine pointed illustrations with a minimum of copy, all revolving around the slogan, "When you've *got* to get there, take the train."

In answer to questions which indicated that in some quarters it was felt that undue emphasis was being placed on the advantages of rail travel to the detriment of travel by airplane, Howard S. Palmer, president and trustee of the New Haven, said, "While everyone recognizes that the airplane has its place in the field of transportation, just as do the ship and bus, we do not expect to play a passive part in post-war travel promotion, nor do we intend to let the real superiorities and advantages of rail travel remain unknown to the public. This campaign is evidence of our belief

Weather got you down?
When you've got to get there,
Take the Train
THE NEW HAVEN R.R.
Regular, Frequent Service Between
Southern New England and New York
Comfortable . . . Safe . . . Certain

in the future of passenger travel in the New Haven's rich territory. It is also evidence of the determination of the New Haven's management to utilize every selling tool to back up that belief."

L.C.L. Congestion Aggravates Freight Car Shortage

Recent increases in less-than-carload freight volume, a shortage of experienced freight house employees and inability of carriers to make all necessary deliveries to many business concerns' receiving departments which observe shortened work-weeks or daily work-hours have tied up thousands of box cars handling l.c.l. freight, thereby causing "widespread congestion" in railroad freight houses and contributing to the current shortage of freight cars, it was asserted this week by the Transportation Committee of the Chamber of Commerce of the United States. The committee's views were disclosed following a recent meeting at which time the freight car situation was outlined by representatives of the Office of Defense Transportation and the Car Service Division of the Association of American Railroads.

Urging users of l.c.l. or package freight service to cooperate to "their own advantage" by extending the times when they will accept deliveries, the C. of C. said that "the situation is now so serious that if it continues and grows worse, and other means cannot be found to alleviate it, local or general embargoes may have to be invoked."

The C. of C. further noted that due to accumulated demands, the box car shortage is expected to continue this winter, even after the end of the fall traffic peak in November. It said that easing of the current "acute" shortage of open top cars is foreseen about that time.

"Relief in sight through new freight car construction is relatively limited," it concluded. "The railroads have 1,725,000 and private owners, 250,000 cars; 55,000 new cars are on order, with delivery of 7,000 per month promised. While the percentage of cars in bad order has continued low, 4.4 per cent, shortage of repair materials threatens to raise this figure. O. D. T. and railroads have urgently requested increased supplies of such materials."

Four Sites Proposed for New Chicago Passenger Terminals

The Chicago South Side Terminal Committee, in a conference with Chicago city officials, revealed that it has four tentative passenger station sites and plans under consideration and that it believes that the railroads which now use the Central, Dearborn, LaSalle Street and Grand Central stations cannot be properly accommodated in fewer than two new passenger terminals. The study has also been expanded to include a general review of freight handling facilities, including the location and adequacy of freight houses, team tracks, classification yards and interchange tracks.

One of the proposed passenger stations would be located at Congress street and be of the stub type with 6 suburban and 24 through train tracks. Another is planned to be located at Polk street, west of Clark street, to be of the combination through, stub and loop type with 20 tracks, all for through trains. This plan calls for the retention of a portion of the present LaSalle Street station as a suburban train terminal. A third plan envisions an entirely new layout on the site of the present Dearborn station, comprising 24 tracks for through trains and 6 suburban tracks, all of the stub type. The fourth plan is for a station at 12th street and the lake front, the site of the existing Central station. This terminal is proposed to be of the combination stub and through type, consisting of 22 tracks. The plan for this terminal also provides for relocation of the I. C.'s suburban tracks on the west side of the station, but still using entirely separate facilities as at present.

The committee expressed the opinion that a new terminal at 12th street will be required in addition to one of the other three plans, and expressed doubt that any satisfactory solution to the problem can be devised using only one station for all roads. So far there have been no proposals made as to the individual railroads that will make use of the various facilities proposed.

While the committee was hesitant about making estimates of costs in the absence of more detailed plans and in view of present uncertainties in construction costs, it said that the total cost of the passenger station project, including necessary adjustments in freight facilities, will probably exceed $100 million, while the cost of a wholesale attack on the terminal problems of these roads, including all freight and passenger facilities in the city, will exceed $150 million.

Selected Income and Balance-Sheet Items of Class I Steam Railways

Compiled from 129 reports (Form IBS) representing 133 steam railways
(Switching and Terminal Companies Not Included)

Income Items	All Class I Railways — For the month of June 1946	For the month of June 1945	For the six months of 1946	For the six months of 1945
1. Net railway operating income	$38,080,301	$99,947,374	$152,956,160	$548,526,379
2. Other income	21,626,741	22,590,585	88,316,062	96,249,746
3. Total income	59,707,042	122,537,959	241,272,672	644,776,125
4. Miscellaneous deductions from income	2,378,816	2,734,833	13,495,280	15,424,720
5. Income available for fixed charges	57,328,226	119,803,126	227,777,392	629,351,405
6. Fixed charges:				
6-01. Rent for leased roads and equipment	10,817,335	12,940,023	58,868,111	74,739,178
6-02. Interest deductions[1]	28,889,260	33,118,799	178,613,925	190,116,150
6-03. Other deductions	121,724	111,006	720,750	662,417
6-04. Total fixed charges	39,828,319	46,169,828	238,202,786	265,517,745
7. Income after fixed charges	17,499,907	73,633,298	*10,425,394	363,833,660
8. Contingent charges	2,879,902	3,437,666	17,597,034	19,865,674
9. Net income[2]	14,620,005	70,195,632	*28,022,428	343,967,986
10. Depreciation (Way and structures and Equipment)	28,258,898	27,832,144	170,478,419	165,711,082
11. Amortization of defense projects	821,397	20,194,176	3,917,776	117,720,571
12. Federal income taxes	3,174,017	111,596,766	12,637,925	593,165,704
13. Dividend appropriations:				
13-01. On common stock	16,632,422	9,794,656	83,683,063	79,980,438
13-02. On preferred stock	5,591,614	3,571,713	25,192,795	21,753,059
Ratio of income to fixed charges (Item 5÷6-04)	1.44	2.59	.96	2.37

Selected Asset and Liability Items	All Class I Railways — Balance at end of June 1946	Balance at end of June 1945
17. Expenditures (gross) for additions and betterments—Road	$100,726,520	$99,991,888
18. Expenditures (gross) for additions and betterments—Equipment	117,763,774	139,168,290
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	581,592,418	573,056,418
20. Other unadjusted debits	175,791,588	262,471,779
21. Cash	971,835,015	1,026,019,918
22. Temporary cash investments	1,253,043,135	1,827,283,041
23. Special deposits	186,392,460	207,340,055
24. Loans and bills receivable	454,533	350,763
25. Traffic and car-service balances—Dr.	42,240,204	54,274,536
26. Net balance receivable from agents and conductors	108,122,866	137,232,431
27. Miscellaneous accounts receivable	365,374,635	628,417,821
28. Materials and supplies	610,947,514	605,981,294
29. Interest and dividends receivable	23,760,475	35,752,065
30. Accrued accounts receivable	188,230,303	293,243,496
31. Other current assets	32,582,986	58,723,749
32. Total current assets (items 21 to 31)	3,782,984,126	4,874,619,169
40. Funded debt maturing within 6 months[3]	111,087,810	112,579,272
41. Loans and bills payable	11,054,058	5,354,059
42. Traffic and car-service balances—Cr.	114,803,669	189,805,775
43. Audited accounts and wages payable	485,522,146	425,680,197
44. Miscellaneous accounts payable	185,664,710	213,670,519
45. Interest matured unpaid	63,641,374	70,528,683
46. Dividends matured unpaid	15,895,554	27,014,875
47. Unmatured interest accrued	49,904,162	45,838,100
48. Unmatured dividends declared	18,709,276	18,145,906
49. Accrued accounts payable	187,631,206	215,997,924
50. Taxes accrued	591,209,790	1,629,813,591
51. Other current liabilities	108,069,223	128,375,908
52. Total current liabilities (items 41 to 51)	1,832,105,168	2,970,225,537
53. Analysis of taxes accrued:		
53-01. U. S. Government taxes	457,277,041	1,478,543,039
53-02. Other than U. S. Government taxes	133,932,749	151,270,552
54. Other unadjusted credits	394,451,439	571,809,158

[1] Represents accruals, including the amount in default.
[2] After deductions of the following amounts to create reserves for land grant deductions in dispute: June 1946, $248,189; June 1945, $3,496,737; 6 months of 1946, $1,377,545; 6 months of 1945, $20,853,279.
[3] Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.
* Decrease or deficit.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Sets Argument on Nickel Plate Control of W. & L. E.

The Interstate Commerce Commission will hear oral argument at Washington, D. C., October 28, on the recent proposed report wherein Examiner Ralph R. Molster has recommended conditional approval by the commission of a transaction whereby the New York, Chicago & St. Louis would acquire from the Chesapeake & Ohio 78,145 shares of Wheeling & Lake Erie common stock, thus building its holdings of the latter's voting shares to about 46.9 per cent of the total. The proposed report was reviewed in the *Railway Age* of July 27, page 146.

Robert R. Young, chairman of the C. & O. board of directors, has already issued a public statement protecting against one of the examiner's proposed conditions which would limit the selling price to the amount which the C. & O. paid for the stock—$4,168,388 or $53.34 per share as compared with the $5,470,150 or $70 per share proposed in the application.

Steelman Action Aims to Reduce Subsidy Payments on Coal

Stabilization Director John R. Steelman this week announced plans for the "progressive reduction" and "final termination" of subsidy payments used to offset abnormal transportation costs in the movement of coal to New England and the New York Harbor area. According to the Office of Economic Stabilization, the action will result in the reduction of approximately two-thirds in subsidy payments made on coal received in New England and the New York Harbor area after December 31.

In a directive to the Office of Price Administration and the Reconstruction Finance Corporation, Mr. Steelman ordered that subsidy payments be continued on a "declining scale" until April 1, 1947. As subsidy payments are reduced, he said, the O. P. A. will increase maximum coal prices in the affected areas to the extent found necessary to compensate generally for the reductions.

Army Promotes H. G. Hill

Lieutenant Colonel Howard G. Hill, formerly a mechanical engineer with the Southern Pacific, has been promoted to the rank of colonel in the Corps of Engineers—reserve, the War Department has announced. Colonel Hill, who served as general manager of the United States Military Railway in southern Sicily in 1943, is now in Japan conducting a survey of the Imperial Japanese Government Railway for American general headquarters, after which he will return to Washington, D. C., to resume his practice as consulting engineer on railways.

G., M. & O. Fined $5,000 for Violating Elkins Act

Entering a plea of guilty to five counts of an information consisting of 15 counts which charged violation of the Elkins Act, the Gulf, Mobile & Ohio was fined $5,000 in the United States District Court at Memphis, Tenn., on September 23, it was announced October 16 by Secretary W. P. Bartel of the Interstate Commerce Commission. The remaining 10 counts were nolle prossed.

The information charged the G., M. & O. with failure to observe the provisions of its published tariffc, in violation of Section 1 of the Elkins Act, by failing to assess and collect demurrage on cars detained by it for a shipper at Humboldt, Tenn.

Emergency Board Report

The White House has made public the report of the National Railway Labor Panel emergency board which was appointed on September 18 by Panel Chairman H. H. Schwartz to investigate a dispute between the Atlantic Coast Line and certain of its dining car employees who are represented by the Hotel and Restaurant Employees' International Alliance and Bartenders' International League, American Federation of Labor. The dispute involved a demand for overtime wages at time-and-one-half rates instead of pro rata for work in excess of 240 hours per month, and the board recommended that the demand be met.

Ceiling Price on Split Cross Ties Increased by O. P. A.

The Office of Price Administration has increased by $7.50 per thousand board feet the mill ceilings for split or hewn redwood cross ties. The increase became effective October 16.

The price agency noted that while no increase in ceilings for the split ties had previously been granted since May, 1943, maximum prices for the sawn variety have been increased twice since November, 1943, in an amount totalling $7.50 per thousand board feet. It said that similar action could not be taken previously on split ties "because inadequate records kept by the predominantly small operators who produce those items have made cost surveys impossible."

Commission Sets Hearing Date on Pullman Acquisition

The Interstate Commerce Commission has set November 14 as the hearing date in the No. 29592 proceeding in which several railroads, comprising a "buying group," have applied to the commission for approval of a transaction whereby they would acquire the Pullman Company's sleeping car business. Details of the plan were outlined in *Railway Age*, August 3, page 194.

The hearing will be held at Washington, D. C., before Examiner Hosmer.

Freight Car Loadings

Loadings of revenue freight for the week ended October 12 totaled 899,443 cars, the Association of American Railroads announced on October 17. This was a decrease of 7,405 cars, or 0.8 per cent, under the previous week, an increase of 144,884 cars, or 19.2 per cent, above the corresponding week last year, and an increase of 723 cars, or 0.1 per cent, above the comparable 1944 week.

Loading of revenue freight for the week ended October 5, totaled 906,848 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, October 5 District	1946	1945	1944
Eastern	172,635	136,592	160,900
Allegheny	190,036	158,477	190,792
Pocahontas	62,423	36,750	55,198
Southern	133,715	112,369	120,919
Northwestern	144,087	135,180	137,414
Central Western	141,330	131,812	139,764
Southwestern	62,622	56,860	72,048
Total Western Districts	348,039	323,832	349,226
Total All Roads	906,848	768,040	877,035
Commodities:			
Grain and grain products	47,227	52,030	45,448
Livestock	24,208	24,191	23,645
Coal	168,464	124,550	171,527
Coke	13,914	10,335	13,813
Forest products	46,988	34,263	42,525
Ore	63,011	65,231	71,100
Merchandise l.c.l.	126,530	110,762	108,448
Miscellaneous	394,506	346,678	400,529
October 5	906,848	768,040	877,035
September 28	916,483	832,509	912,627
September 21	899,053	837,293	897,883
September 14	907,169	856,101	891,456
September 7	794,483	729,854	825,166
Cumulative total, 40 weeks	31,325,445	32,782,139	33,623,100

In Canada.—Car loadings for the week ended October 5 totaled 81,441, cars as compared with 76,376 cars for the corresponding week last year, according to the compilation by the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
October 5, 1946	81,441	37,402
October 6, 1945	76,376	31,462
Cumulative Totals for Canada:		
October 5, 1946	2,754,432	1,365,108
October 6, 1945	2,766,699	1,421,979

Club Meetings

The Railway Business Woman's Association of Chicago will hold a dinner on October 22, at 6 p.m., at the Swedish Club, 1258 N. LaSalle st.

The next monthly luncheon of the Traffic Club of Philadelphia, Pa., will be held on October 28, at 12:15 p.m., in the club rooms, Benjamin Franklin hotel.

The next meeting of the New York division of Railroad Enthusiasts, Inc., scheduled to start at 7:45 p.m., on October 23, will hear a talk on the Lehigh & New England by J. Stanley Genther, assistant to the executive vice-president of that road. A motion picture made for the American Steel Foundries will be shown.

The General News Department is continued on page 669.

Supply Trade

M. H. Clarke has been appointed vice-president and director of manufacturing of the **Dayton Rubber Manufacturing Company.**

John D. Cannon, whose election to president of the **Morton Manufacturing Company,** Chicago, was reported in the *Railway Age* of October 12, was born in

John D. Cannon

Chicago, and is a graduate of the University of Illinois. Mr. Cannon has been associated with the company since 1929, and has been a vice-president and its treasurer since 1934. The appointment of **James A. King,** vice-president, to be in charge of all railway division sales of the firm, was also reported in the October 12 issue of *Railway Age*. Mr. King joined the company in 1919, and was elected a vice-president in

James A. King

1934. He has been in charge of engineering for many years.

Earl M. Allen, formerly with the Union Switch & Signal Company, with headquarters at Swissvale, Pa., has been appointed chief of the signal engineering and train control division of **De Leuw, Cather & Company,** 20 North Wacker drive, Chicago 6. The appointment is co-

Earl M. Allen

incident with the enlargement of the scope of the services of this company to include a department handling railway traffic operating problems, signaling and train control. Mr. Allen was born in Minneapolis, Minn., and received his education in the public schools and Minnesota college, including night courses in electrical engineering at Rochester, N. Y. His signaling career has included field and office service with the Great Northern, General Railway Signal Company, New York Central, and the Union Switch & Signal Company. During the recent war he served as an instructor of advanced signaling on the extension faculty of Pennsylvania State college.

John L. Marsh, recently returned from service in the United States Navy, has been

placed in charge of insulated wire and cable sales for the **Okonite Company** in the new sales office at 417 Merchants Bank building, Indianapolis 4, Ind.

C. R. Dobson, formerly chief industrial engineer of the Jones & Laughlin Steel Corp., has been elected vice-president in

C. R. Dobson

charge of operation for the **H. K. Porter Company.** Mr. Dobson will supervise operations of the company's seven manufacturing plants.

James D. Greensward, who has been associated with the **Allis-Chalmers Manufacturing Company,** Milwaukee, Wis., since 1922, has been appointed assistant to William C. Johnson, vice-president of the general machinery division.

John V. Haugh has been appointed engineering representative, with headquarters in Chicago, for the **Kropp Forge Company,** covering a group of mid-western railroads. Mr. Haugh for the past eight years has operated his own railroad supply business, known as the Haugh Railroad & Industrial Supply Co.

The **Pittsburgh Plate Glass Company** has announced the purchase of the **Morck Brush Manufacturing Company** of San Francisco, Calif., which will be operated as the Morck brush division. **Frank F. Tippett,** formerly with the Baltimore, Md., brush plant of Pittsburgh Plate Glass, has been appointed manager of the new division.

Kennametal Inc. has appointed three new representatives, as follows: **George E. Smith** and **Wendell F. Grubbs** for the company's Middle Atlantic district, with headquarters at Philadelphia, Pa., and **E. C. Kelly** for the Central district, with headquarters in Detroit, Mich.

S. S. Bruce, manager of the traffic and transportation department of **Koppers Company,** has been appointed to the newly created position of executive sales representative in Washington, D. C., effective November 1. **John B. Keeler,** assistant manager of the traffic and transportation department, will succeed Mr. Bruce as manager.

William A. McFarland, chemical research engineer for the **American Lumber & Treating Co.,** will be in charge of a new laboratory to be opened on November 1 at the firm's Wauna, Ore., plant, the purpose of which is to place research in close contact with the treatment of Douglas fir and other western species.

H. B. Ellis, whose appointment as assistant to vice-president of **General Motors Corporation** was reported in the *Railway Age* of October 12, entered the service of the firm's **Electro-Motive division** in 1926, after 16 years' service with the White Motor and Cleveland Tractor companies. In 1928 Mr. Ellis was appointed assistant service manager, and in 1930 he became service manager. He was advanced to director of parts and service in 1944, which position he held at the time of his current appointment. Mr. Ellis is one of those responsible for the raised platform and depressed floor principle in layout

H. B. Ellis

of Diesel maintenance and repair shops, and has been closely associated with the development of the firm's Diesel locomotive school at La Grange, Ill.

OBITUARY

Frank L. Fay, former president of the Greenville Steel Car Company, a subsidiary of the Pittsburgh Forgings Company, died on October 10 at Clifton Springs, N. Y. He was 77 years old. Born in Cleveland, Ohio, Mr. Fay first worked with the New York, Chicago & St. Louis and then joined the Bessemer & Lake Erie as head of the car service department. He resigned in 1910 to found the Greenville Metal Products Company, which became the Greenville Steel Car Company.

"AUSTERITIES" ABANDONED.—According to a correspondent of the Railway Gazette (London), six sidings in Kent have become what may be the last stop for 110 war-built 2-8-0 locomotives, the so-called Austerity type, which were in service behind the battle lines in France.

Equipment and Supplies

M. P. Expenditures Approved

The Missouri Pacific has been authorized by the federal district court at St. Louis, Mo., to spend more than $12,000,000 for new equipment and additional facilities. The expenditures, according to P. J. Neff, president and chief executive officer, will include the purchase of 2,200 new freight cars, costing $10,495,000, and the purchase of eight new streamlined passenger cars and an additional Diesel-electric locomotive, amounting to $1,300,000.

New facilities will be installed to serve the rapidly expanding fresh fruit and vegetable industry of south Texas at a cost of $422,000, Mr. Neff said. The placing of these orders, he stated, will bring the amount of equipment on order by the M. P. to more than $26,000,000.

FREIGHT CARS

The CENTRAL OF PENNSYLVANIA has ordered 8 70-ton covered hopper cars from the Harlan & Hollingsworth Corporation. The inquiry for these cars, which will cost $45,600 and delivery of which is expected to be completed in March, 1947, was reported in the *Railway Age* of September 7, page 424.

The LEHIGH & HUDSON RIVER has ordered 20 70-ton covered hopper cars from the Harlan & Hollingsworth Corporation. The inquiry for this equipment was reported in the *Railway Age* for September 7, page 424.

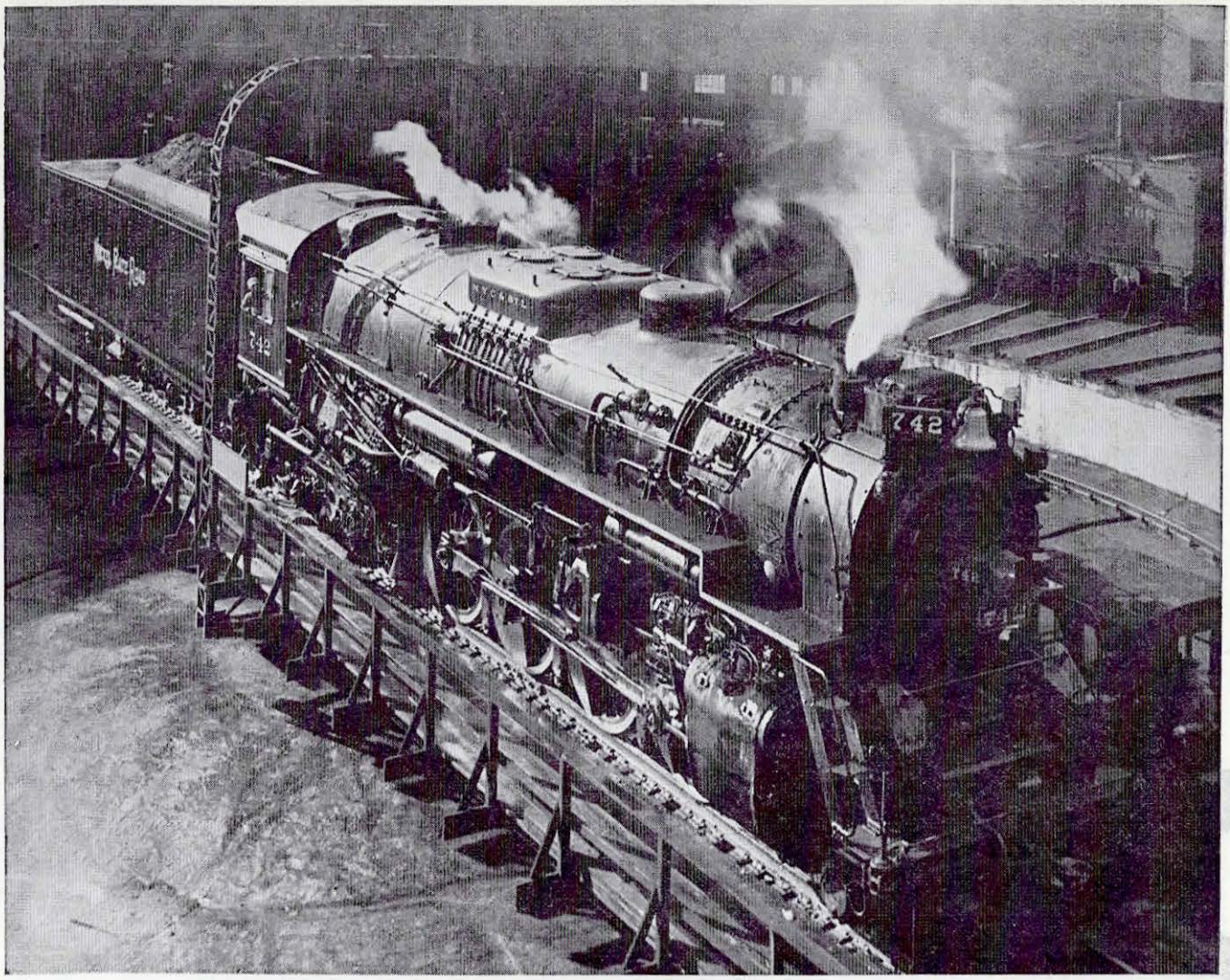
The LEHIGH VALLEY has ordered 500 50-ton box cars from the Pullman-Standard Car Manufacturing Company and 100 70-ton drop-end gondola cars from the Bethlehem Steel Company. The inquiry for this equipment was reported in the *Railway Age* for September 21, page 496.

The NORTHERN REFRIGERATOR LINE has ordered 50 70-ton refrigerator cars from the Despatch Shops, East Rochester, N. Y.

IRON AND STEEL

The PENNSYLVANIA has announced the placing of orders, to provide for future needs, for minimum of 130,000 tons of steel rails to be delivered in 1947. The orders include provisos that an additional 45,000 tons may be required to meet track maintenance schedules, thus raising the possible total orders for next year to 175,000 tons. The Carnegie-Illinois Steel Company will roll a minimum of 65,000 tons, with a possible maximum of 87,500 tons; the Bethlehem Steel Company, a minimum of 57,200 tons and a maximum of 77,000 tons and the Inland Steel Company a minimum of 7,800 tons with a maximum of 10,500 tons. The new rail will be in three weights: 155-lb., 140-lb. and 133-lb. Orders for track fastenings, covering a total minimum of 65,000 tons and a total maximum of 87,500 tons, have been placed with various companies.

News Department continued on next left-hand page



HEAVY PAYLOADS

...at passenger speeds

The Nickel Plate's fleet of fifty-five Lima-built 2-8-4s enables them to maintain the necessarily fast schedules required by today's freight demands. During the past five years, this railroad has been building up its motive power to enable it to handle maximum payloads at a maximum of efficiency and economy.

Freight train schedules are rapidly approaching the speeds of passenger schedules. Keep abreast of the times with power that is capable of meeting today's ever increasing demands.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

SIGNALING

THE SEABOARD AIR LINE has placed orders with the Union Switch & Signal Company covering the necessary materials for new signaling on approximately 600 miles of its line. Three control machines of the Union Style C type are involved. One 25-ft. machine will be installed at Savannah, Ga., for the control of the territory between Savannah and Hamlet, N. C., 245 miles. One 10-ft. machine will be located at Tampa for the control of the territory between Valrico, Fla., and Coleman, a distance of 66.5 miles. A 20-ft. machine will be installed at Jacksonville for the control of the territory between Coleman and Miami, Fla., a distance of 274 miles. A total of 9 coded carrier and 4 d.c. channels will be provided, with the majority of the track circuit materials furnished for normally-deenergized coded track circuit operation. Major items involved include color-light Style R-2 high signals and Style N-2 dwarf signals, M-22-A electric switch layouts, SL-21 electric switch locks, U-5 switch circuit controllers, field code and carrier equipments, relays of the conventional and plug-in types, housings, rectifiers and transformers. The installation will be made by contract and railroad company forces.

Financial

ALABAMA GREAT SOUTHERN.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized this road, a subsidiary of the Southern, to purchase the rights, franchises and properties of the Belt Railway Company of Chattanooga, which consists of approximately 49.58 miles of main line and switching tracks in and around Chattanooga, Tenn. The transaction, involving no cash considerations, provides that the applicant, which owns all stocks and bonds of the Belt, will surrender those holdings for cancellation, cancel the Belt's indebtedness and assume all its other liabilities. The Belt has no liabilities, other than its indebtedness to the applicant. The A.G.S. has operated the properties of the Belt since December 21, 1895, and a lease covering such operation expired July 1, 1945.

BALTIMORE & OHIO—*Equipment Trust Certificates.*—This road has requested bids on a proposed issue of $7,620,000 of Series R equipment trust certificates to be dated November 1, 1946, and mature in ten equal annual installments beginning on November 1, 1947. The certificates, subject to the approval of the Interstate Commerce Commission, are being issued to finance up to 80 per cent of the cost of 2,000 50-ton open top steel hopper cars to be built in equal amounts by the Pullman-Standard Car Manufacturing Company and the Bethlehem Steel Company and 500 steel automobile cars to be built by the Harlan & Hollingsworth Corporation.

CHICAGO & NORTH WESTERN.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for $10,140,000 of equipment trust certificates to finance in part the acquisition of equipment estimated to cost $13,540,000. Equipment to be acquired includes 19 Diesel-electric locomotives from the Electro-Motive Division of the General Motors Corporation and one from the Baldwin Locomotive Works; 53 passenger-train cars from the Pullman-Standard Car Manufacturing Company and 20 from the American Car & Foundry Company; and 140 70-ton covered hopper cars from the Bethlehem Steel Company. The certificates would be sold on the besis of competitive bids, the bidders having been asked to name both the price and interest rate, for a 10- or 15-year trust, or both.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Conditional Sales Agreements.*—This road has accepted the bid of the First National Bank of Chicago to purchase, on a 1.94 per cent interest basis, the 10-year conditional sales agreements aggregating, after an initial cash payment of 25 per cent, $3,969,090, which will be issued to finance the purchase of 11 Diesel-electric locomotives (4 4,500-hp. freight; 2 3,000-hp. freight and 5 1,000-hp. switching locomotives). 500 50-ton steel box cars and 100 70-ton steel covered hopper cars.

CENTRAL OF GEORGIA.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for $2,300,000 of equipment trust certificates, series U, representing 74½ per cent of the cost of equipment which the applicant plans to acquire. The equipment includes 2 Diesel-electric switching locomotives, 8 2,000-hp. Diesel-electric road locomotives, 100 50-ton pulpwood cars, and 18 passenger-train cars. The certificates would be dated October 1 and would mature in 10 annual installments starting October 1, 1947.

ERIE.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this road to issue $1,233,850 in promissory notes to further evidence the indebtedness it will assume under conditional sales agreements by which it plans to purchase 15 Diesel-electric locomotives from the American Locomotive Company and 4 Diesel-electrics from the Baldwin Locomotive Works, as reported in *Railway Age,* September 21, page 499. At the same time, the commission deferred action on that part of the application requesting authority to issue $705,000 in promissory notes to further evidence the indebtedness the Erie will assume under a conditional sales agreement with the Bethlehem Steel Company from which it plans to purchase 200 gondolas, pending opening of bids.

GULF, MOBILE & OHIO.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for $2,400,000 of equipment trust certificates, series C, to finance in part the acquisition of equipment estimated to cost a total of $3,145,500. The equipment includes 13 road-freight type A-unit 1,500-hp. Diesel-electric locomotives, at $137,500 each; 4 Diesel-electric switching locomotives; 50 70-ton all-steel covered hopper cars, and 150 50-ton box cars. The locomotives would be purchased from the American Locomotive Company, the hoppers from the Pullman-Standard Car Manufacturing Company and the box cars from the American Car & Foundry Company. The certificates would be dated November 1 and would mature in 10 annual installments starting November 1, 1947.

ST. LOUIS-SAN FRANCISCO.—*Reorganization.*—Frederick W. Ecker and Richard J. Lockwood, reorganization managers of this road, have applied to the Interstate Commerce Commission for an order authorizing the issuance of securities, assumption of obligations and liabilities, transfer of the property, and conferring on them any other authority needed to consummate the approved plan of reorganization.

ST. LOUIS-SAN FRANCISCO.—*Equipment Trust Certificates.*—Division 4 of the Interstate Commerce Commission has authorized this road to assume liability for $5,500,000 of 1⅞ per cent equipment trust certificates, the proceeds of which will be applied toward the payment of $7,346,358 for equipment which the applicant proposed to purchase, as outlined in *Railway Age* of September 21, page 499. The certificates will be dated October 1 and will mature in 10 equal annual installments of $550,000 each starting October 1, 1947. The report approves a selling price of 99.93, the bid of Salomon Brothers & Hutzler and Stroud & Company, on which basis the average annual cost will be 1.89 per cent.

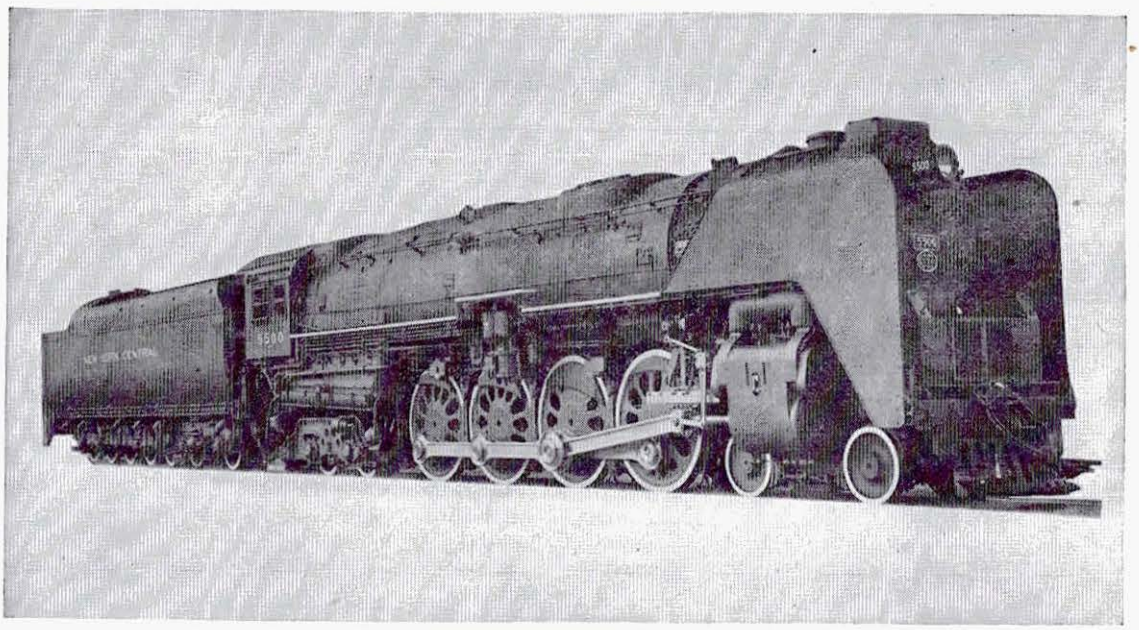
NEW YORK, ONTARIO & WESTERN.—*Equipment Trust Certificates.*—Division 4 of the Interstate Commerce Commission has approved a transaction whereby the Reconstruction Finance Corporation will purchase at par and accrued dividends $2,600,000 of this road's 3 per cent equipment trust certificates, the proceeds of which will represent aproximately 89.3 per cent of the purchase price of 26 Diesel-electric locomotives which the applicant plans to purchase from the Electro-Motive Division of the General Motors Corporation. The transaction completes a plan whereby the applicant intends to replace all its steam locomotive with Diesel-electrics. The certificates would be dated August 31 and mature in 40 quarterly installments of $65,000 each starting December 1.

PITTSBURG, SHAWMUT & NORTHERN.—*Reorganization.*—Division 4 of the Interstate Commerce Commission has ratified the court appointments of Thomas C. Buchanan and Robert C. Sproul, Jr., as trustees of this road, now under reorganization proceedings in the District Court of the United States for the Western District of Pennsylvania, pursuant to the provisions of Section 77 of the Bankruptcy Act.

WHEELING & LAKE ERIE.—*Equipment Trust Certificates.*—Division 4 of the Interstate Commerce Commission has authorized this road to assume liability for $1,720,000 of 1½ per cent equipment trust certificates, Series L, the proceeds of which will be applied toward the payment of $2,150,002.50 for 750 gondolas which the applicant proposes to purchase from the Ralston Steel Car Company, as noted in *Railway Age,* September 21, page 499. The certificates will be dated October 1 and will mature in

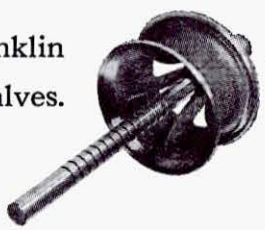
News Department continued on next left-hand page

24670 MILES ... 30 DAYS!



From September 8 to October 8, New York Central's No. 5500 rolled up this mileage while assigned to the Commodore Vanderbilt between Harmon and Chicago.

This locomotive is equipped with the Franklin System of Steam Distribution, with poppet valves.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK • CHICAGO • MONTREAL

STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
AUTOMATIC FIRE DOORS • DRIVING BOX LUBRICATORS • STEAM GRATE SHAKERS • FLEXIBLE JOINTS • CAR CONNECTION

20 equal semi-annual installments starting April 1, 1947, and ending October 1, 1956. The report approves a selling price of 99.066, the bid of Halsey, Stuart & Company, on which basis the average annual cost will be approximately 1.69 per cent.

UNION PACIFIC.—*New Director.*—Artemus L. Gates, former assistant secretary of the navy for air, has been appointed a director of this road.

Average Prices Stocks and Bonds

	Oct. 15	Last week	Last year
Average price of 20 representative railway stocks..	49.56	46.85	59.73
Average price of 20 representative railway bonds..	89.46	88.62	98.68

Construction

BALTIMORE & OHIO.—This road has awarded a contract to the McLean Contracting Company, Baltimore, Md., for extending the slip and installing car pullers at east side pier 6, Locust Point, Baltimore. The estimated cost of the project is $80,000. A contract has been awarded to the Ogle Construction Company, Chicago, for the construction of coal, sand and cinder handling facilities at the Barr yard in Chicago. The estimated cost of this project is $84,000.

CHICAGO, ROCK ISLAND & PACIFIC.—Division 4 of the Interstate Commerce Commission has authorized this road to construct a 4.5-mile extension to its line at Butterfield, Ark., to serve a mining area which is without rail service.

PENNSYLVANIA.—This road has awarded a contract to the Frederick Snare Corporation for the construction of a freight house on Hunter street, Newark, N. J. The approximate cost of the project is $100,000.

READING.—This road has awarded a contract to Spearin, Preston & Barrows, Inc., New York, for work involving the protection of a bulkhead at the car dumper pier at Port Reading, N. J. The estimated cost of this project is $20,000.

Abandonments

ARKANSAS HARBOR.—This road has applied to the Interstate Commerce Commission for authority to abandon its entire line, extending 6½ miles from Aransas Pass, Tex., to Port Aransas.

CALIFORNIA, SHASTA & EASTERN.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its entire line, extending 15.3 miles from Bella Vista, Calif., to Anderson. The rail was removed in 1937 and a portion of the roadbed, including a bridge, has been converted into a highway.

EVANSVILLE & OHIO VALLEY.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its entire line, extending 13 miles from a connection with the Southern at Rockport, Ind., to a point between Hatfield and Yankeetown. The abandonment is the remaining segment of an electrically-operated road that formerly extended from Grandview, Ind., to Evansville. The applicant intends to provide motor truck transportation for freight it had handled by rail.

ERIE.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon a 13.2-mile portion of its so-called Hoytville branch, from a point west of Blossburg, Pa., to the end of the line at Hoytville. The division imposed the usual employee-protection conditions.

ONEIDA & WESTERN.—Acting upon a request of this road, Division 4 of the Interstate Commerce Commission has dismissed the Finance Docket No. 15291 application whereby it had sought authority to abandon its entire line extending 37.8 miles from Oneida, Tenn., to Jamestown.

Railway Officers

EXECUTIVE

Carl W. Meyers has been elected president of the Colorado & Wyoming, succeeding **E. P. Holder,** who has resigned.

E. D. Conley, assistant to vice-president and general manager of the Minneapolis & St. Louis, has retired because of ill health, after 31 years of service.

E. Roland Harriman, a director of the Union Pacific since 1920, and a member of the executive committee since 1941, has been elected chairman of the board, succeeding **W. Averell Harriman,** recently appointed United States secretary of commerce, who resigned from the board on October 3.

R. C. Morse, vice-president of the Eastern region of the Pennsylvania, with headquarters at Philadelphia, Pa., has been named vice-president in charge of real estate and taxation, relieving **C. D. Young** of these duties. Mr. Young continues as vice-president in charge of purchases, stores and insurance. **E. W. Smith,** vice-president of the Central region, succeeds Mr. Morse in the Eastern region. **J. A. Appleton,** assistant vice president-operation, and who, prior to war service in the Army Transportation Corps, was general manager of the Pennsylvania's New York zone, has been advanced to vice-president, Central region, with headquarters at Pittsburgh, succeeding Mr. Smith. All of these appointments became effective October 16.

James M. Symes, vice-president of the Pennsylvania, Western region, with headquarters at Chicago, has been promoted to deputy vice-president in charge of operation, with headquarters at Philadelphia, Pa. Mr. Symes is succeeded by **Paul E. Feucht,** general manager of the road's central region, with headquarters at Pittsburgh. Succeeding Mr. Feucht is **Herman H. Pevler,** general manager at Chicago, who in turn is succeeded by **Walter W. Patchell,** assistant to vice-president-operation at Philadelphia.

Paul E. Feucht

Mr. Feucht was born at Indianapolis, Ind., and is a graduate of Purdue University. He entered the service of the Pennsylvania in 1923, as assistant in the engineer corps at Louisville, Ky. He later served at Philadelphia, Indianapolis and Tyrone, Pa., and was advanced to supervisor on the Sshuylkill division in 1929. He returned to Tyrone as supervisor in 1930, and in 1933 was promoted to division engineer of the Renovo division. In 1934 he was made division engineer of the Fort Wayne division, and the following year he was advanced to superintendent

Walter W. Patchell

of the Wilkes-Barre division. He became superintendent of passenger transportation, eastern region, in 1936. Other advancements of Mr. Feucht are as follows: 1939, general superintendent of the Southwestern division at Indianapolis; 1942, general superintendent at Cleveland; 1945, general manager at Chicago. On February 1, 1946, he was promoted to general manager at Pittsburgh, which position he held until his current promotion.

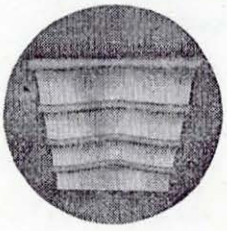
Mr. Patchell was born at Philadelphia, and is a graduate of Pennsylvania State College. He began his career with the Pennsylvania in 1915 as a draftsman. In 1920 he was advanced to assistant to the division engineer of the Conemaugh division, and later served successively as as-

News Department continued on next left-hand page

keep every locomotive at peak efficiency!

Even if all old locomotives cannot be immediately modernized, it is vitally important to keep their steaming efficiency as high as possible.

To secure all the power a locomotive is capable of producing, and to get the utmost value from every ton of fuel burned, a complete brick arch should always be maintained in the firebox. And whatever the type of locomotive, a Security Sectional Arch will give long service with low maintenance costs.



HARBISON-WALKER REFRACTORIES CO.
Refractories Specialists

AMERICAN ARCH CO. INC.
60 East 42nd Street, New York 17, N. Y.
Locomotive Combustion Specialists

sistant supervisor, supervisor and division engineer on several divisions. He was appointed superintendent of passenger transportation at Pittsburgh in 1933, and the following year he served in the general office at Philadelphia and on several divisions as superintendent. In 1938 he returned to Philadelphia for work in the office of the chief electrical engineer, and in the succeeding year was made general superintendent at Cleveland. Two years later, Mr. Patchell was transferred to Harrisburg, Pa., and on February 16, 1942, he was advanced to assistant to vice-president-operation, which position he held at the time of his current promotion.

FINANCIAL, LEGAL AND ACCOUNTING

F. A. Miller has been appointed auditor, and **E. A. Miller,** assistant auditor, of the Copper Range.

John C. Donnally, commerce counsel of the Virginian, has been appointed general attorney, with headquarters as before in the Investment building Washington, D. C.

J. N. Kreyling has been appointed insurance manager of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo.

M. C. Schroeder has been appointed car accountant of the Elgin, Joliet & Eastern.

C. H. Houchens, car accountant for the Richmond, Fredericksburg & Potomac at Richmond, Va., has been granted a furlough on account of ill health. **A. C. Beck** has been named acting car accountant pending Mr. Houchen's return to duty.

OPERATING

W. O. Rux has been appointed assistant to general manager of the Minneapolis & St. Louis.

B. G. Nash has been appointed superintendent of the Pere Marquette, with headquarters at Detroit, Mich., succeeding **C. L. McGrain,** who has been transferred to Saginaw, Mich.

H. W. Johnson has been appointed general manager of the Copper Range, succeeding **N. E. Fowler,** who has retired. **C. S. Sincock** has been appointed superintendent, and **F. E. Ricca,** car accountant.

M. M. Bell, assistant superintendent of the Indiana Harbor Belt, with headquarters at Gibson, Ind., has been promoted to superintendent. Mr. Bell is succeeded by **L. T. Schmidt.**

C. Martinson has been appointed assistant superintendent and master mechanic of the Canadian National, with headquarters at Prince George, B. C., succeeding **E. N. Stewart,** who has returned to his former position.

E. B. Stanton, engineer maintenance of way of the Spokane, Portland & Seattle, has been appointed also assistant general manager, with headquarters at Portland, Ore.

Joseph J. Stein, whose promotion to assistant general manager, eastern district, of the Chicago & North Western, with headquarters at Chicago, was reported in the *Railway Age* of October 5, began his railroad service with that road in 1917, holding successively the positions of clerk, telegraph operator, leverman and agent.

Joseph J. Stein

He was later advanced to chief train dispatcher, after which he was promoted in turn to transportation inspector, trainmaster, and assistant to general manager. He was appointed general superintendent, dining car department, in 1944, which position he held until his recent appointment.

Donald M. Bender, assistant superintendent of transportation of the New York, Chicago & St. Louis, has been appointed superintendent of transportation at Cleveland, Ohio, succeeding **William Bartley,** whose retirement was reported in the October 5 issue of *Railway Age.*

Mr. Bender has served the New York, Chicago & St. Louis for 26 years, beginning as a yard clerk at Cleveland in January, 1921. From 1921 to 1939, he served in clerical capacities in the yard office, superintendent's office, and the office of the

Donald M. Bender

superintendent of transportation, successively. He was advanced to transportation supervisor in 1939, then became assistant superintendent of transportation in 1941. Mr. Bender maintained the latter post until his recent promotion.

Mr. Bartley, who was born on September 4, 1879, began his railroad service as a messenger boy for the Cleveland, Cincinnati, Chicago & St. Louis, in 1895. He was appointed car accountant of the Lake Shore & Michigan Southern (now the New York Central) in 1902, his jurisdiction being extended to the Lake Erie & Western (now the Nickel Plate). He became superintendent of car service at Indianapolis, Ind., in 1914, then returned to Cleveland in 1923 in the same capacity for the consolidated Nickel Plate, Lake Erie & Western, Toledo, St. Louis & Western.

Mr. Bartley was appointed assistant superintendent transportation of the N. Y., C., & St. L. in 1938 and then in 1941 advanced to the post from which he has now retired.

T. M. Flynn, whose retirement as superintendent of the Northern Pacific, with headquarters at Minneapolis, Minn., was reported in the *Railway Age* of October 5, was born on September 21, 1873, at Urbana, Ill., and entered railroad service in 1891 with the Chicago & North Western. Mr. Flynn joined the Great Northern in 1896, holding various clerical positions in that road's operating department. In 1903 he was advanced to chief clerk to the division superintendent at Spokane, Wash., and a year later joined the Chicago Great Western, successively holding the positions of traveling material accountant, assistant chief clerk to the auditor, and chief clerk to the general superintendent. In 1908 he became associated with the Northern Pacific as chief clerk to the general superintendent at Livingston, Mont., and the following year he was advanced to freight trainmaster at Glendive, Mont., which position he held until 1925. In the latter year he was promoted to assistant to the general superintendent at St. Paul, Minn., and in 1926 he was further advanced to superintendent at Jamestown, N. D. Mr. Flynn was transferred to Minneapolis in 1928.

TRAFFIC

W. H. Carr has been appointed assistant to traffic manager of the St. Louis Southwestern.

H. F. Martin has been appointed general agent of the Atlantic Coast Line, with headquarters at Clewiston, Fla.

E. H. Hokenson has been appointed general agent, passenger department, of the Chicago, Indianapolis & Louisville, with headquarters at Louisville, Ky.

J. R. Almey has been appointed general agricultural agent of the Canadian Pacific, with headquarters at Winnipeg, Man., succeeding **T. S. Acheson,** whose retirement was reported in the *Railway Age* of August 3.

C. Ray Wilmore has been appointed assistant general freight agent of the Southern Pacific, with headquarters at San Francisco, succeeding **L. C. Zimmerman,** who has retired after 29 years of service.

F. D. Bunsen has been appointed assistant general freight agent of the Southern Pacific, with headquarters at El Paso, Tex. **H. E. Smith** has been appointed freight claim agent, with headquarters at San Francisco.

News Department continued on next left-hand page

The American Multiple-valve Throttle

...popular the World Over

AMERICAN THROTTLE COMPANY
INCORPORATED
60 East 42nd Street, New York 17, N.Y.
122 S. Michigan Avenue, Chicago 3, Ill.

W. W. Brown, general freight agent of the New York, Chicago & St. Louis, has been appointed assistant freight traffic manager, southern and southwestern territories, with headquarters as before at St. Louis, Mo.

ENGINEERING & SIGNALING

L. A. Raymond, superintendent, communications, of the Canadian Pacific, at Vancouver, B. C., has been transferred to Toronto, Ont., in the same capacity.

E. H. Marton, assistant engineer in the office of the division engineer of the New York Central, at Chicago, has been appointed industrial engineer, with the same headquarters.

C. P. Disney, whose retirement as bridge engineer of the Canadian National at Toronto, Ont., was announced in the August 17 *Railway Age,* was born at Montreal, Que., and entered railroading in 1904 as bridge engineer at Ottawa, Ont. In 1914 he served the Intercolonial (now the C. N. R.) at Moncton, N. B., leaving to serve with the British Army overseas from 1915 to 1919. Upon demobilization he resumed his career with the Canadian National in December, 1919, as acting bridge engineer at Toronto, where he was named bridge engineer in October, 1922. Mr. Disney then held that position uninterruptedly until his recent retirement.

Max Nearing has been appointed assistant division engineer on the New York Central, with headquarters at Cleveland, Ohio, succeeding **W. A. Bogert,** who has been transferred to the Toledo division with headquarters at Toledo, Ohio. **K. E. Dunn** has been appointed assistant division engineer, with headquarters at Columbus, Ohio. **C. A. Geiger** has been appointed assistant division engineer, with headquarters at Erie, Pa.

G. S. Turner, whose appointment as chief engineer of the Denver & Salt Lake, with headquarters at Denver, Colo., was reported in the *Railway Age* of September 21, was born at Long Island, Kan., on July 4, 1888, and received his higher education at the Colorado School of Agriculture. He entered railroad service in 1917 as a draftsman on the Denver & Rio Grande Western, at Pueblo, Colo., and served in that capacity until 1921, when he became assistant engineer, with the same headquarters. In 1932 Mr. Turner became assistant engineer on the Denver & Salt Lake, serving first on the construction of the Dotsero cutoff, and later at Denver. From 1936 to 1941 he served as engineer maintenance of way, at Denver, returning in the latter year to the Denver & Rio Grande Western as roadmaster, with headquarters at Helper, Utah. In 1942 he was appointed division engineer, with headquarters at Pueblo, the position he held at the time of his recent promotion.

H. S. Ingram, superintendent, communications, of the Canadian Pacific, with headquarters at Toronto, Ont., has retired. Mr. Ingram was born at Calgary, Alta., on February 28, 1885, entered the service of the Canadian Pacific in February, 1901, as a telegraph messenger at Prescott, Ont., and served subsequently as telegraph operator, traffic and wire chief, and chief operator and inspector. In 1923 he was appointed superintendent, tariff and traffic, at Winnepeg, Man., and in 1924 he became superintendent, telegraphs, at Montreal, Que. In 1930 Mr. Ingram was advanced to superintendent, communications, at Toronto, the position he held at the time of his retirement.

William T. Dorrance, whose appointment as consulting engineer of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., was reported in a recent issue of *Railway Age,* was born on July 30, 1873, at Providence, R. I., and was graduated from Brown university in 1894 and Massachusetts Institute of Technology in 1896. During 1897 and 1898, Mr. Dorrance served as rodman and instrumentman on the construction of South Station in Boston, Mass.,

William T. Dorrance

then joined the Buffalo, Rochester & Pittsburgh (now part of the Baltimore & Ohio) as assistant engineer. In 1902, he went with the New York Central, and was appointed engineer of construction in 1906, leaving in 1911. From 1912 to 1914, he served the Portland Terminal Company and the East Boston Company. During 1914 and 1915, he served the Boston, Revere Beach & Lynn (electric) in the construction of a drawbridge and enginehouse. Mr. Dorrance joined the New Haven in 1915, in the valuation department, and became chief draftsman in 1916. He was advanced to designing engineer in 1920, then to assistant to chief engineer in 1931. He held the latter post until his appointment as consulting engineer.

Grey W. Curtiss, whose appointment as district engineer of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., was announced in a recent issue of *Railway Age,* was born on June 24, 1884, at New Haven, and was graduated from Sheffield Scientific School of Yale university in 1905. He entered railroading with the New Haven the same year as rodman inspector, advancing to inspector transitman in 1906 and chief of party in 1910. He served from 1911 to 1922 as resident engineer, assistant engineer, assistant contract engineer, and track supervisor, successively. In March, 1922, he was named assistant division engineer for the New Haven and New London division, becoming division engineer, Danbury division, in 1926. Mr. Curtiss transferred to the New Haven division in 1929,

Grey W. Curtiss

and maintained this post until his recent appointment as district engineer there.

MECHANICAL

J. W. McKinnon, division master mechanic of the Canadian Pacific, at Trenton, Ont., has been appointed district master mechanic, with headquarters at Toronto, Ont.

PURCHASES AND STORES

Wellington A. Bamford, division storekeeper of the Bangor & Aroostook at Houlton, Me., has been appointed general storekeeper at Derby, Me., succeeding **E. W. Peterson,** whose photograph and biography appeared in the October 12 issue of *Railway Age* in connection with his promotion to purchasing agent. **Windsor F. Alexander,** general foreman of the stores department at Derby, has been named division storekeeper at Houlton, succeeding Mr. Bamford.

SPECIAL

W. D. Bee, special agent of the Illinois Central, with headquarters at New Orleans, La., has been promoted to chief special agent, with headquarters at Chicago, succeeding **George F. Doyle,** whose death was reported in the *Railway Age* of October 12.

Dr. B. E. Topham, medical examiner of the Norfolk & Western at Roanoke, Va., has been appointed medical director of the relief and pension department there, succeeding the late Dr. D. E. Remsberg.

OBITUARY

Daniel K. Roll, supervisor of signal construction of the Chesapeake & Ohio, with headquarters at Huntingdon, W. Va., died on September 17, after 35 years of continuous service with that road.

M. C. Burton, retired freight traffic manager of the Atchison, Topeka & Santa Fe, died recently at his home in Topeka, Kan. Mr. Burton's retirement on July 31, 1946, was reported in the *Railway Age* of August 3.

Table of Freight Operating Statistics appears on the next left-hand page.

Up on the Iron Range HSGI helps GET OUT THE ORE

● **Engines that get vacations.** When the lakes freeze over, no ore is dug from the man-made Grand Canyons on the Iron Range. Usually that means a rest for these husky pullers, but during the war when the need for power was acute, they worked through the winters hauling freight over the mountain grades of a big western road.

Up in the Red Earth Country these big articulateds —among the most powerful ever built—haul twelve thousand ton ore trains over the Duluth Missabe and Iron Range. A large part of the nation's steel starts on its way to the user behind these giant engines, so much depends upon their faithful day in, day out performance.

Hunt-Spiller Gun Iron, by helping to maintain top efficiency in DMIR engines, has had a part in this important job for many years. But that is the rule with most of America's Class I railroads; seventy-six of them have used HSGI vital parts for more than a generation.

HUNT SPILLER GUN IRON HSGI *AIR FURNACE PROCESS*

HUNT-SPILLER MFG. CORPORATION

N. C. RAYMOND, *President* E. J. FULLER, *Vice-Pres. & Gen. Mgr.*

383 Dorchester Ave. ★ South Boston 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agents:
International Rwy. Supply Co., 30 Church Street, New York 7, N. Y.

Cylinder Bushings	Crosshead Shoes	Dunbar Sectional Type Packing
Cylinder Packing Rings	Hub Liners	Duplex Sectional Type Packing
Pistons or Piston Bull Rings	Shoes and Wedges	for Cylinders and Valves
Valve Bushings	Floating Rod Bushings	(Duplex Springs for Above
Valve Packing Rings	Light Weight Valves	Sectional Packing)
Valve Bull Rings	Cylinder Liners and Pistons	Cylinder Snap Rings
	for Diesel Service	Valve Rings, All Shapes

VETERANS AND FUTURE VETERANS

3 Florida Stars

The top 3 veteran General Motors Diesel locomotive units on the Florida East Coast Railway—two of which entered service in late '39 and the other in late '40—have total mileage worth shouting about—

4,044,172 miles

These 3 stars have met their assigned mileage 91.2% of the time — a remarkable record for units averaging 1,348,057 miles apiece.

That this high availability is not unusual with General Motors Diesel locomotive units is attested by a total of 21 on this railroad — from veterans to newcomers. Availability average for all 21 is 94.1%.

GENERAL MOTORS LOCOMOTIVES

These General Motors Diesel units have rolled up a grand total of 8,984,058 miles. The average monthly mileage is 17,145—on heavy passenger runs.

RECORD ON FLORIDA EAST COAST RAILWAY

LOCOMOTIVE NUMBER	MILES COVERED	MILES ASSIGNED	AVAILABILITY	MILES OPERATED PER MONTH	DATE DELIVERED
1001	1,336,615	1,550,337	86.2	17,359	11-39
1002	1,480,614	1,572,899	94.1	19,229	11-39
1003	1,226,943	1,312,569	93.5	19,171	12-40
1004	950,848	986,143	96.4	19,017	2-42
1005	946,185	983,357	96.2	18,924	2-42
1006	178,419	180,746	98.7	14,868	4-45
1007	184,092	184,323	99.9	15,341	4-45
1008	149,872	150,201	99.8	14,987	6-45
1009	112,915	116,466	97.0	11,292	6-45
1010	149,336	149,682	99.8	14,934	6-45
1011	152,450	152,450	100.0	15,245	6-45
1012	107,674	107,674	100.0	10,767	6-45
1013	150,374	150,374	100.0	15,037	6-45
1014*	94,616	111,536	84.8	9,462	6-45
1015	103,454	103,454	100.0	10,345	6-45
1016	140,406	140,406	100.0	14,041	6-45
1017	109,408	109,737	99.7	10,941	6-45
1051	920,121	990,260	92.9	18,402	2-42
1052	189,672	189,672	100.0	15,806	4-45
1053	150,296	150,642	99.8	15,030	6-45
1054	149,748	150,786	99.3	14,975	6-45
21 locomotive units	8,984,058	9,543,714	94.1	315,173	

*Number 1014 lost 16,920 miles in October 1945 due to accident

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS LA GRANGE, ILL.

Freight Operating Statistics of Large Steam Railways—Selected

Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (*thousands*)	Car-miles: Per cent loaded	Ton-miles (*thousands*): Gross excl. locos. & tenders	Ton-miles (*thousands*): Net-rev. and non-rev.	Road locos. on line: Serviceable: Unstored	Road locos. on line: Serviceable: Stored	Road locos. on line: B. O.	Road locos. on line: Per cent B. O.
New England Region:												
Boston & Albany 1946	362	147,287	162,482	22,178	3,360	63.3	210,089	81,802	59	..	29	33.0
1945	362	166,846	186,420	28,523	3,631	61.1	246,671	103,403	65	..	25	27.8
Boston & Maine 1946	1,750	314,609	**328,880**	**18,697**	**11,390**	**71.2**	688,160	297,128	106	16	14	10.3
1945	1,777	329,191	341,962*	16,246	12,512	68.8	802,882	361,183	116	20	18	11.7
N. Y., New H. & Hartf.† 1946	1,820	384,176	527,838	45,330	14,876	70.8	869,521	375,498	194	14	63	23.4
1945	1,815	431,562	600,057	44,722	16,798	69.6	1,016,823	449,708	201	27	43	17.0
Great Lakes Region:												
Delaware & Hudson 1946	846	269,155	322,846	33,230	11,413	65.2	803,483	408,622	112	67	30	14.4
1945	846	299,322	365,544	37,019	12,967	67.9	927,916	495,412	118	65	36	16.4
Del., Lack. & Western 1946	971	320,200	361,888	45,339	13,649	70.3	889,581	397,658	114	26	32	18.6
1945	**971**	**368,280**	**419,054**	**55,376**	15,692	70.4	1,034,399	495,595	129	36	41	19.9
Erie 1946	2,242	753,834	802,789	67,685	36,787	66.0	2,406,843	1,007,266	262	43	83	21.4
1945	2,243	849,707	903,919	69,758	41,024	67.5	2,679,282	1,181,609	299	30	60	15.4
Grand Trunk Western 1946	972	280,462	290,378	2,441	9,358	68.2	598,334	261,700	70	1	7	9.0
1945	1,026	263,975	268,426	2,020	8,322	69.9	529,409	240,797	64	2	11	14.3
Lehigh Valley 1946	1,242	301,426	334,788	51,869	13,701	71.7	909,900	455,439	114	18	37	21.9
1945	1,247	388,023	430,244	64,232	17,123	65.9	1,201,490	597,142	131	27	11	6.5
New York Central 1946	10,328	3,219,721	3,440,683	227,296	119,932	62.7	8,174,728	3,668,356	1,016	55	323	23.2
1945	10,331	3,336,590	3,585,477	228,735	126,896	65.6	8,688,241	4,132,746	1,049	47	307	21.9
New York, Chi. & St. L. 1946	1,656	611,398	619,141	7,805	25,722	70.6	1,593,011	699,519	133	13	32	18.0
1945	1,656	704,801	716,290	9,660	29,083	70.5	1,854,566	854,406	153	27	19	9.5
Pere Marquette 1946	1,915	370,309	379,593	8,176	12,621	67.6	821,305	362,284	129	5	27	16.8
1945	1,915	412,367	429,533	9,520	14,683	69.6	959,392	459,548	133	3	26	16.0
Pitts. & Lake Erie 1946	229	97,057	98,077	158	3,812	66.0	320,214	188,774	33	2	19	35.2
1945	229	95,919	96,791	64	4,090	65.4	343,156	201,341	37	..	14	27.5
Wabash 1946	2,381	693,439	715,495	17,719	24,935	71.0	1,588,531	705,200	163	12	32	15.5
1945	2,381	696,869	719,133	17,108	25,008	71.6	1,600,612	732,921	170	..	40	19.0
Central Eastern Region:												
Baltimore & Ohio **1946**	6,103	2,066,806	2,581,855	292,000	72,609	65.3	5,182,366	2,584,075	824	15	321	27.7
1945	6,095	2,361,714	2,937,393	313,071	84,558	**65.5**	6,136,103	3,138,183	903	4	265	22.6
Central of New Jersey† 1946	649	161,652	187,700	49,125	7,129	71.7	434,334	230,435	92	3	58	37.9
1945	654	199,886	230,015	51,495	7,626	66.2	551,288	284,386	106	14	30	20.0
Chicago & Eastern Ill. 1946	910	181,668	183,720	3,812	5,748	70.3	388,042	194,916	55	2	21	26.9
1945	912	263,413	266,045	6,214	7,472	63.8	519,242	245,058	69	4	10	12.0
Elgin, Joliet & Eastern 1946	392	106,358	**110,666**	3,163	3,240	66.3	249,100	133,587	41	4	19	29.7
1945	392	117,201	122,282	3,467	3,467	67.8	263,749	143,387	49	7	17	23.3
Long Island 1946	372	39,504	41,616	15,025	536	55.5	37,609	14,817	38	..	3	7.3
1945	372	40,298	42,519	16,426	576	54.5	40,780	15,235	45	..	6	11.8
Pennsylvania System 1946	10,033	4,158,635	4,832,091	659,516	163,386	65.3	11,418,432	5,552,677	1,912	4	319	14.3
1945	10,024	4,343,205	5,075,084	695,335	172,447	66.0	12,196,329	6,070,789	1,992	10	219	9.9
Reading 1946	1,361	485,747	537,642	61,384	16,187	65.8	1,229,110	672,447	252	25	49	15.0
1945	1,365	538,329	597,290	71,518	18,676	67.5	1,408,609	785,716	253	37	39	11.9
Pocahontas Region:												
Chesapeake & Ohio 1946	3,063	1,161,272	1,244,220	59,748	54,785	56.6	4,693,269	2,679,970	469	..	59	11.2
1945	3,038	1,067,596	1,139,545	55,777	49,715	58.6	4,166,907	2,402,543	452	6	61	11.8
Norfolk & Western 1946	2,139	711,400	755,176	48,806	33,022	58.0	2,853,931	1,545,103	262	52	18	5.7
1945	2,139	681,367	729,806	52,290	32,077	60.6	2,699,239	1,472,429	254	33	15	5.0
Southern Region:												
Atlantic Coast Line 1946	5,552	935,471	954,102	14,812	24,087	66.0	1,574,483	709,122	377	44	32	7.1
1945	5,557	1,005,877	1,016,162	14,299	24,947	65.7	1,653,553	752,082	414	6	32	7.1
Central of Georgia† 1946	1,783	316,831	323,771	6,271	7,857	69.3	527,240	240,539	90	..	8	8.2
1945	1,783	316,687	326,302	6,260	7,545	69.7	491,614	226,603	95	..	8	7.8
Gulf, Mobile & Ohio 1946	1,931	291,800	345,253	2,276	10,418	75.2	660,858	323,500	101	13	17	13.0
1945	1,931	311,286	399,996	2,273	11,534	75.6	723,055	350,069	104	1	9	7.9
Illinois Central 1946	6,585	1,447,764	1,460,585	51,613	53,582	66.1	3,618,563	1,708,462	586	13	94	13.6
1945	6,605	1,569,204	1,592,163	48,576	58,589	65.0	4,051,495	1,943,170	651	2	55	7.8
Louisville & Nashville 1946	4,750	1,526,374	1,661,117	45,515	39,871	64.8	2,816,850	1,451,804	403	19	67	13.7
1945	4,745	1,544,979	1,674,301	43,493	40,612	64.8	2,851,078	1,451,506	413	11	66	13.5
Seaboard Air Line* 1946	4,139	745,957	780,124	11,512	21,695	70.0	1,381,371	625,814	260	16	57	17.1
1945	4,157	792,466	824,371	19,151	22,125	67.8	1,421,123	630,479	256	16	61	18.3
Southern 1946	6,450	2,212,238	2,250,036	36,286	51,532	68.9	3,215,795	1,437,406	616	2	104	14.4
1945	6,471	2,157,403	2,191,845	40,019	49,917	70.3	3,094,495	1,405,175	623	..	97	13.5
Northwestern Region:												
Chi. & North Western 1946	8,062	1,072,043	1,110,435	27,582	34,807	68.5	2,328,540	992,000	365	5	135	26.7
1945	8,062	1,053,080	1,090,203	25,179	34,850	67.9	2,361,668	1,097,775	358	11	109	22.8
Chicago Great Western 1946	1,445	247,319	251,104	14,123	7,818	72.3	493,635	218,332	65	..	12	15.6
1945	1,445	280,082	285,697	6,941	9,148	75.3	577,859	264,843	66	..	15	18.5
Chi., Milw., St. P. & Pac. 1946	10,725	1,366,050	1,445,250	54,848	46,415	68.2	3,050,538	1,398,902	444	76	80	13.3
1945	10,723	1,564,417	1,675,490	89,665	56,229	65.0	3,805,061	1,733,917	511	33	69	11.3
Chi., St. P., Minneap. & Om. 1946	1,606	204,868	219,161	13,634	5,482	69.7	365,002	162,353	78	1	41	34.2
1945	1,606	196,113	212,378	12,441	5,459	72.4	361,174	170,195	86	13	29	22.7
Duluth, Missabe & Iron Range 1946	546	168,582	169,414	1,193	9,181	51.2	845,582	516,662	50	..	1	2.0
1945	546	170,532	171,179	1,510	9,373	50.8	877,569	538,332	46	..	1	2.1
Great Northern 1946	8,236	936,061	934,987	36,260	36,264	66.2	2,597,040	1,282,287	325	71	82	17.2
1945	8,275	1,225,234	1,227,940	64,343	52,947	66.3	3,797,734	1,863,832	389	27	49	10.5
Minneap., St. P. & S. St. M. 1946	4,181	433,725	441,281	7,259	12,092	68.2	798,420	379,184	123	..	12	8.9
1945	4,259	444,107	453,102	9,922	12,855	67.0	884,834	431,841	124	1	15	10.7
Northern Pacific 1946	6,576	847,655	898,571	55,055	30,964	67.2	2,125,751	972,692	350	27	56	12.9
1945	6,577	1,014,460	1,082,342	73,970	42,905	72.8	2,851,148	1,365,026	382	6	56	12.6
Central Western Region:												
Alton† 1946	915	202,435	204,279	408	5,859	74.7	374,335	187,459	63	23	20	18.9
1945	915	261,579	277,233	612	7,022	69.2	471,518	224,612	76	..	5	6.2
Atch., Top. & S. Fe (incl. 1946	13,085	3,116,388	3,302,467	184,921	110,736	64.1	7,484,026	2,838,043	763	50	160	16.4
G. C. & S. F. & P. & S. F.) 1945	13,115	3,992,003	4,246,259	219,522	**145,338**	**62.8**	10,089,683	4,065,276	930	1	113	10.8
Chi., Burl. & Quincy 1946	8,671	1,285,854	1,335,151	49,738	48,405	66.2	3,314,175	1,538,028	410	49	80	14.8
1945	8,768	1,479,697	1,572,244	61,736	58,567	68.9	3,999,075	1,945,202	425	..	78	15.5
Chi., Rock I. & Pac.† 1946	7,615	1,364,398	1,406,765	23,547	41,969	64.6	2,859,684	1,273,476	368	8	81	17.7
1945	7,716	1,581,871	1,629,283	23,924	51,077	69.4	3,313,941	1,519,298	376	..	81	17.7
Denver & R. G. Wn.† 1946	2,386	336,086	370,497	44,518	10,432	74.2	678,392	329,693	140	30	38	18.3
1945	2,386	496,811	562,476	99,716	18,960	75.9	1,190,549	574,700	171	7	36	16.8
Southern Pacific Company 1946	8,171	2,410,153	2,705,377	428,946	92,946	67.2	6,141,471	2,432,643	813	2	160	16.4
1945	8,178	2,420,662	2,751,056	416,353	103,139	66.4	6,855,978	2,737,747	770	..	161	17.3
Union Pacific 1946	9,775	2,635,346	2,743,495	196,131	95,323	64.8	6,360,066	2,619,136	652	99	124	14.2
1945	9,779	3,439,988	3,678,209	351,577	132,012	69.3	8,560,332	3,796,116	898	10	58	6.0
Southwestern Region:												
Mo.-Kans.-Texas Lines 1946	3,241	538,130	554,326	10,005	15,118	69.1	962,552	430,533	117	..	49	29.5
1945	3,241	703,308	730,922	11,151	19,636	64.7	1,305,613	589,876	148	..	19	11.4
Missouri Pacific† 1946	7,053	1,454,228	1,526,687	39,425	49,439	70.3	3,205,605	1,494,595	443	1	67	13.1
1945	7,056	1,682,541	1,782,321	42,865	59,442	66.9	4,035,573	1,893,430	467	..	75	13.8
Texas & Pacific 1946	1,871	422,581	422,581	8,357	13,179	63.8	913,938	370,523	113	38	6	3.8
1945	1,871	488,048	488,110	7,591	15,947	66.1	1,079,880	459,057	138	8	15	9.3
St. Louis-San Francisco† 1946	4,615	957,055	1,005,168	11,148	23,409	68.8	1,537,026	701,088	304	5	32	9.4
1945	4,615	1,094,705	1,177,546	15,826	27,415	68.5	1,814,360	862,603	319	..	30	8.6
St. Louis-San Fran. & Texas 1946	156	38,070	40,616	12	659	66.8	45,871	20,483	10	..	..	..
1945	161	34,440	36,126	.....	598	68.7	39,618	17,901	7	..	1	12.5
St. Louis Southw. Lines† 1946	1,568	356,356	358,666	4,744	14,213	81.1	826,432	369,427	90	20	20	15.4
1945	1,600	430,174	432,741	5,580	16,335	70.5	1,006,616	449,971	111	6	24	17.0
Texas & New Orleans 1946	4,321	953,301	954,111	12,761	26,388	75.6	1,655,637	772,756	238	2	30	11.1
1945	4,325	1,078,325	1,080,887	25,333	28,301	65.9	1,889,290	820,584	265	..	21	7.3

* Report of receivers.
† Report of trustee or trustees.

Items for the Month of July 1946 Compared with July 1945

Region, road, and year		Freight cars on line: Home	Foreign	Total	Per Cent B. O.	G.t.m. per train-hr. excl.locos. and tenders	G.t.m. per train-mi. excl.locos. and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd. car-mile	Net ton-mi. per car-day	Car miles per car-day	Net daily ton-mi. per road-mi.	Coal lb. per 1000 g.t.m. inc. loco.	Mi. per loco. per day
New England Region:														
Boston & Albany	1946	285	5,417	5,702	0.8	22,556	1,436	559	24.3	472	30.6	7,289	182	75.3
	1945	241	5,603	5,844	0.5	23,112	1,486	623	28.5	571	32.8	9,214	181	85.3
Boston & Maine	1946	1,886	12,482	14,368	2.8	32,281	2,193	947	26.1	692	37.2	5,477	102	88.6
	1945	1,878	10,979	12,857	2.1	37,922	2,446	1,100	28.9	913	46.0	6,557	100	76.0
N. Y., New H. & Hartf.†	1946	2,600	21,340	23,940	3.4	31,051	2,269	980	25.2	525	29.4	6,655	90	75.2
	1945	1,750	18,433	20,183	3.5	33,170	2,364	1,045	26.8	700	37.5	7,993	83	84.7
Great Lakes Region:														
Delaware & Hudson	1946	2,620	6,592	9,212	4.8	51,694	3,001	1,526	35.8	1,352	57.9	15,581	101	57.3
	1945	3,508	6,235	9,743	4.2	53,476	3,119	1,665	38.2	1,529	58.9	18,890	99	62.2
Del., Lack. & Western	1946	4,782	13,729	18,511	4.3	42,414	2,817	1,259	29.1	702	34.3	13,211	108	85.7
	1945	4,576	12,757	17,333	3.6	43,161	2,840	1,361	31.6	914	41.1	16,464	105	80.8
Erie	1946	6,763	28,723	35,486	2.8	51,468	3,212	1,344	27.4	923	51.1	14,493	92	79.3
	1945	8,339	30,424	38,763	2.9	52,593	3,173	1,400	28.8	989	50.9	16,993	90	88.2
Grand Trunk Western	1946	4,039	9,732	13,771	8.1	43,270	2,147	939	28.0	620	32.5	8,685	84	131.7
	1945	1,978	8,523	10,501	5.2	42,027	2,023	920	28.9	773	38.2	7,571	79	120.6
Lehigh Valley	1946	5,952	13,266	19,218	6.4	50,648	3,116	1,560	33.2	736	30.9	11,829	99	78.1
	1945	5,888	17,614	23,502	2.9	52,010	3,207	1,594	34.9	787	34.3	15,447	94	99.3
New York Central	1946	48,530	101,597	150,127	5.1	40,251	2,578	1,157	30.6	764	39.8	11,458	98	95.2
	1945	41,283	93,289	134,572	4.3	42,315	2,639	1,255	32.6	979	45.8	12,904	99	97.8
New York, Chi. & St. L.	1946	2,182	13,780	15,962	3.1	49,908	2,623	1,152	27.2	1,465	76.3	13,626	81	120.7
	1945	2,070	13,781	15,851	2.4	51,003	2,639	1,216	29.4	1,763	85.1	16,643	82	124.3
Pere Marquette	1946	3,902	13,129	17,031	4.5	37,290	2,234	985	28.7	692	35.6	6,103	88	83.5
	1945	2,803	9,362	12,165	3.8	42,130	2,345	1,123	31.3	1,235	56.7	7,741	86	92.2
Pitts. & Lake Erie	1946	2,767	8,613	11,380	5.4	50,026	3,309	1,950	49.5	493	15.1	26,592	86	65.4
	1945	4,231	10,344	14,575	7.3	52,191	3,582	2,102	49.2	458	14.2	28,362	85	69.8
Wabash	1946	5,320	15,905	21,225	3.2	44,159	2,315	1,028	28.2	1,063	52.9	9,554	95	120 0
	1945	5,655	13,730	19,385	4.4	44,676	2,316	1,061	29.3	1,260	60.1	9,930	102	117.6
Central Eastern Region:														
Baltimore & Ohio	1946	38,088	54,106	92,194	5.9	31,986	2,566	1,280	35.6	959	41.3	13,658	140	82.5
	1945	37,439	54,608	92,047	4.9	32,441	2,651	1,356	37.1	1,089	44.8	16,609	137	92.8
Central of New Jersey†	1946	3,910	11,846	15,756	6.6	31,868	2,782	1,476	32.3	466	20.1	11,454	119	65.2
	1945	3,516	14,883	18,399	6.4	31,955	2,860	1,475	37.3	496	20.1	14,027	113	78.5
Chicago & Eastern Ill.	1946	1,823	4,454	6,277	6.2	36,992	2,204	1,107	33.9	1,038	43.5	6,909	102	81.1
	1945	1,910	4,525	6,435	7.0	37,990	2,026	956	32.8	1,143	54.5	8,668	108	110.3
Elgin, Joliet & Eastern	1946	8,104	8,689	16,793	2.0	20,203	2,487	1,334	41.2	248	9.1	10,993	122	79.8
	1945	8,397	5,410	13,807	2.9	19,528	2,371	1,289	41.4	330	11.8	11,799	131	76.0
Long Island	1946	48	5,695	5,743	.5	7,610	987	389	27.6	86	5.6	1,285	312	70.5
	1945	18	6.011	6,029	.5	7,630	1,040	389	26.4	86	6.0	1,321	287	56.0
Pennsylvania System	1946	117,210	134,809	252,019	8.4	37,154	2,847	1,384	34.0	710	32.0	17,853	120	86.2
	1945	112,130	120,655	232,785	5.3	40,042	2,897	1,442	35.2	834	35.9	19,536	117	90.1
Reading	1946	9,094	23,125	32,219	3.3	32,792	2,536	1,388	41.5	657	24.0	15,938	108	69.9
	1945	10,164	22,907	33,071	2.8	35,438	2,619	1,461	42.1	776	27.3	18,568	104	74.5
Pocahontas Region:														
Chesapeake & Ohio	1946	38,149	25,124	63,273	1.6	58,849	3,117	2,351	48.9	1,413	51.0	28,224	72	86.9
	1945	35,311	20,805	56,116	2.0	57,883	3,954	2,280	48.3	1,374	48.5	25,511	74	78.9
Norfolk & Western	1946	25,505	7,968	33,473	1.9	63,462	4,066	2,201	46.8	1,477	54.5	23,302	84	83.5
	1945	28,813	7,522	36,335	1.9	64,367	4,011	2,188	45.9	1,309	47.0	22,206	83	90.5
Southern Region:														
Atlantic Coast Line	1946	8,159	19,744	27,903	3.2	27,110	1,690	761	29.4	808	41.6	4,120	116	73.5
	1945	7,709	18,032	25,741	1.8	28,482	1,655	753	30.1	990	50.0	4,366	122	76.6
Central of Georgia†	1946	1,573	6,679	8,252	1.0	29,853	1,672	763	30.6	935	44.1	4,352	124	116.3
	1945	2,041	6,563	8,604	1.1	28,597	1,559	718	30.0	831	39.7	4,100	140	108.3
Gulf, Mobile & Ohio	1946	1,229	6,323	7,552	1.5	40,651	2,274	1,113	31.1	1,345	57.6	5,404	96	90.4
	1945	1,439	7,163	8,602	.6	41,172	2,329	1,128	30.4	1,250	54.5	5,848	106	118.1
Illinois Central	1946	14,999	36,173	51,172	1.4	43,410	2,575	1,216	31.9	1,131	53.7	8,369	111	74.3
	1945	18,240	36,584	54,824	.9	43,683	2,646	1,269	33.2	1,134	52.6	9,490	111	78.7
Louisville & Nashville	1946	26,164	18,970	45,134	3.7	29,076	1,845	951	36.4	1,104	46.7	9,859	121	117.6
	1945	27,190	18,533	45,723	6.5	29,690	1,845	939	35.7	1,031	44.5	9,868	122	118.6
Seaboard Air Line*	1946	5,543	16,528	22,071	1.7	31,962	1,889	856	28.8	869	43.1	4,877	119	85.0
	1945	5,518	16,148	21,666	1.5	32,165	1,832	813	28.5	941	48.7	4,892	118	88.7
Southern	1946	14,059	34,994	49,053	3.8	24,688	1,478	661	27.9	945	49.2	7,189	137	107.0
	1945	13,431	33,241	46,672	3.2	24,682	1,456	661	28.2	1,000	50.5	7,005	141	105.1
Northwestern Region:														
Chi. & North Western	1946	19,916	33,779	53,695	3.8	33,968	2,286	974	28.5	593	30.4	3,969	121	79.4
	1945	19,576	32,733	52,309	3.9	34,876	2,338	1,087	31.5	688	32.2	4,392	114	82.2
Chicago Great Western	1946	1,037	4,590	5,627	6.1	34,721	1,998	884	27.9	1,291	64.0	4,874	115	115.2
	1945	970	4,600	5,570	3.2	36,362	2,077	952	29.0	1,562	71.7	5,912	116	120.8
Chi., Milw., St. P. & Pac.	1946	20,084	32,845	52,929	2.0	36,251	2,259	1,036	30.1	810	39.4	4,208	110	88.0
	1945	20,731	37,201	57,932	1.6	39,256	2,454	1,118	30.8	1,009	50.3	5,216	112	100.3
Chi., St. P., Minneap. & Om.	1946	1,139	6,835	7,974	7.3	22,922	1,823	811	29.6	640	31.0	3,261	104	68.8
	1945	870	6,241	7,111	8.8	25,408	1,870	881	31.2	772	34.2	3,419	98	60.1
Duluth, Missabe & Iron Range	1946	13,962	449	14,411	2.4	90,747	5,172	3,160	56.3	1,148	39.8	30,525	59	127.1
	1945	14,709	270	14,979	2.6	94,271	5,304	3,253	57.4	1,150	30.4	31,805	58	133.3
Great Northern	1946	19,949	17,900	37,849	4.1	44,536	2,799	1,382	35.4	1,042	44.5	5,022	87	69.8
	1945	20,763	29,256	50,019	2.2	48,370	3,126	1,534	35.2	1,212	51.9	7,266	88	95.2
Minneap., St. P. & S. St. M.	1946	5,367	8.023	13,390	4.4	31,834	1,864	885	31.4	858	40.1	2,926	90	115.7
	1945	5,534	6,701	12,235	3.6	34,800	2,009	980	33.6	1,128	50.1	3,271	84	106.3
Northern Pacific	1946	16,022	18,189	34,211	4.9	40,447	2,528	1,157	31.4	908	43.0	4,771	134	77.4
	1945	15,491	22,370	37,861	4.0	43,287	2,834	1,357	31.8	1,135	49.0	6,695	121	90.9
Central Western Region:														
Alton†	1946	1,548	6,348	7,896	1.2	34,683	1,882	943	32.0	785	32.8	6,609	100	68.8
	1945	1,818	6,357	8,175	5.2	38,659	1,815	865	32.0	838	37.9	7,919	112	119.3
Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.)	1946	39,799	44,311	84,110	5.0	46,259	2,416	916	25.6	1,098	66.8	6,997	102	121.8
	1945	39,898	64,430	104,328	3.8	42,546	2,549	1,027	28.0	1,211	69.0	9,999	107	145.6
Chi., Burl. & Quincy	1946	15,109	29,408	44,517	3.2	41,978	2,593	1,203	31.8	1,150	54.7	5,722	97	89.0
	1945	15,160	30,631	45,791	2.6	43,313	2,722	1,324	33.2	1,409	61.6	7,157	99	110.8
Chi., Rock I. & Pac.†	1946	9,319	26,938	36,257	4.1	37,637	2,115	942	30.3	1,105	56.4	5,395	100	106.5
	1945	8,749	26,652	35,401	3.4	36,139	2,119	972	29.7	1,390	67.3	6,352	103	121.2
Denver & R. G. Wn.†	1946	7,031	5,960	12,991	5.6	35,436	2,033	988	31.6	865	36.9	4,457	158	67.6
	1945	7,801	9,555	17,356	4.1	36,202	2,438	1,177	30.3	1,036	45.0	7,770	161	102.7
Southern Pacific Company	1946	23,579	51,917	75,496	2.8	37,990	2,578	1,021	26.2	1,055	60.0	9,604	102	110.2
	1945	23,485	67,581	91,066	2.5	37,719	2,855	1,140	26.5	978	55.5	10,799	97	116.0
Union Pacific	1946	23,746	36,690	60,436	3.3	49,612	2,455	1,011	27.5	1,436	80.7	8,643	122	111.8
	1945	26,057	53,974	80,031	3.6	47,118	2,520	1,117	28.8	1,550	77.8	12,522	120	141.9
Southwestern Region:														
Mo.-Kans.-Texas Lines	1946	1,456	8,807	10,263	1.0	34,004	1,801	805	28.5	1,218	61.9	4,285	77	115.5
	1945	1,252	8,305	9,557	.2	33,558	1,863	842	30.0	1,897	97.7	5,871	79	149.6
Missouri Pacific†	1946	14,303	28,652	42,955	1.7	37,920	2,221	1,035	30.2	1,130	53.2	6,836	101	107.0
	1945	12,183	28,863	41,046	1.9	39,268	2,422	1,136	31.9	1,508	70.8	8,656	100	115.9
Texas & Pacific	1946	1,143	6,385	7,528	2.0	43,855	2,192	889	28.1	1,547	86.2	6,388	89	94.8
	1945	1,473	8,206	9,679	3.1	38,092	2,240	952	28.8	1,454	76.4	7,915	91	107.6
St. Louis-San Francisco†	1946	4,196	16,052	20,248	1.8	32,312	1,617	737	29.9	1,163	56.4	4,900	119	101.3
	1945	5,561	15,187	20,748	1.9	33,132	1,669	793	31.5	1,330	61.8	6,029	122	115.8
St. Louis-San Fran. & Texas	1946	....	375	375	.8	22,300	1,209	540	31.1	1,935	93.1	4,236	116	132.4
	1945	....	351	351	2.6	20,485	1,154	521	29.9	1,504	73.1	3,587	114	147.1
St. Louis Southw. Lines†	1946	1,121	5,187	6,308	3.2	44,511	2,324	1,039	26.0	1,716	81.4	7,600	77	94.9
	1945	871	6,994	7,865	1.8	37,920	2,340	1,046	27.5	1,818	93.6	9,072	80	107.6
Texas & New Orleans	1946	3,223	16,855	20,078	3.7	33,313	1,755	819	29.3	1,203	54.3	5,769	86	122.7
	1945	3,409	18,859	22,268	3.9	31,951	1,769	768	29.0	1,166	61.0	6,120	89	131.0

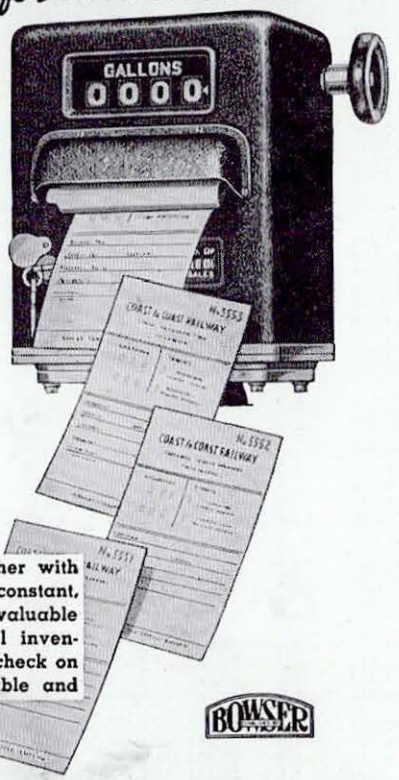
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

ANOTHER

BOWSER ESTABLISHED 1885

DEVELOPMENT for RAILROADS

METERED LIQUID ACCOUNTING SYSTEMS

for ACCURATE ACCOUNTING OF COST AND CONSUMPTION OF FUEL OIL

BOWSER Model K Recording Printers together with Bowser Xacto or Bassler Meters provide a constant, accurate check of fuel oil, lube oil or other valuable railroad liquids. For maintaining perpetual inventories and cost records, and for providing a check on tax-free fuel, this system provides dependable and uniform records.

BOWSER

FOR OIL-TIGHT CONNECTIONS

USE BLACK MAGIC PIPE SEALING COMPOUND ON YOUR PIPE FITTINGS

PRINTED DELIVERY SLIPS RECORD FUEL LOADINGS

The Bowser Accounting System assists in maintaining efficiency and keeping good railroad equipment rolling economically. Bowser meter-printed delivery slips provide space for other information. Available in sets containing as many as eight copies for permanent records of fuel consumption.

COST RECORDS OF FUEL CONSUMPTION CONTRIBUTE TO ECONOMY IN THE OPERATION OF DIESEL EQUIPMENT

Your Bowser special railway representative will gladly explain how other operators use Bowser equipment to effect economy in their operations. Write for Catalog of Bowser Equipment for Railroad Liquids.

A Complete Line of Liquid-Handling Systems For Railroads

- Fueling systems designed for your individual needs.
- Proportioning and blending systems of absolute accuracy.
- Selective lubrication systems for all types of machinery.
- Precise metering and accounting systems for liquid operations.
- Complete storage and dispensing systems for railroads.

BOWSER, INC. • 1321 CREIGHTON AVE. • FORT WAYNE 2, INDIANA

NEWS DEPARTMENT

(*Continued from page 661*)

Army Finds Reich Rail Progress Slowed by Weather

Redeployment of troops and the movement of dependents of American military personnel, coupled with unfavorable weather, resulted in a minimum of improvements to the rail system in the United States Zone of Occupation in Germany during June, according to the War Department's latest report on industrial conditions in that country. Long-distance rail service for civilian passengers was considerably restricted due to the military demands and many passengers at intermediate stations had great difficulty in making their journeys, it added.

The report pointed out that heavy rains during June "considerably impeded" the handling of less-than-carload freight, owing to leaky roofs over many station platforms. The weather also interfered with locomotive and car repairs, as a number of shops are partly exposed. Lack of materials and spare parts also hampered railroad shop operations.

"Military requirements for troop redeployment and the movement of dependents reduced the amount of equipment available for civilian service in June, and consequently a number of long-distance passenger trains were discontinued," the report noted. "As a result of the reduction in the number of through trains, passengers at intermediate stations had difficulty in boarding trains. Passenger trains carried increased quantities of express freight and checked baggage, the latter mainly for expellees and repatriates. The load was so heavy that it was necessary to use boxcars as baggage cars and to continue the embargo on the so-called 'accelerated expedited l.c.l.' freight traffic."

At the same time, however, it was revealed that the military government has inaugurated a new program for the rehabilitation of the rolling stock of the Reichsbahn. Quotas have been established for the repair and rebuilding of railroad rolling stock for the Reichsbahn shops as a group, for the 10 major private repair shops individually and for all other private plants collectively. It is expected that an additional 680 locomotives, 8,333 passenger cars and 51,960 freight cars will become available as a result of this measure.

With respect to repair shop output, the report noted that the average output per workday was 15 locomotives in June as compared with 16.3 in May. The output for the repair of passenger cars per workday increased from 68 to 71 and for freight cars from 369 to 390. Slight decreases in the repair of rolling stock, other than light or running repairs, also were reported for June as compared with the previous month.

In an accompanying survey on rail transportation conditions in Korea, the War Department reported that the number of trains operating in South Korea increased from 120 on January 1 to 224 on May 1. During the same period, the number of locomotives increased from 197 to 283, passenger cars from 243 to 481 and freight cars from 6,375 to 7,100. A total

of 27 locomotives, 47 passenger cars and 129 freight cars also were repaired during May.

Another report covering industrial conditions in Japan disclosed that cancellation of scheduled train operations in that country was reduced from 187,688 kilometers in April to 140,138 kilometers in May. However, total train-kilometers operated increased from 14,051,351 to 15,512,443. It also was reported that 28,310 ft. of railroad track were laid in June and that new rolling stock placed in operation in May consisted of 4 electric and 17 steam locomotives, 26 electric cars, 32 passenger cars and 132 freight cars.

Canadian National Plans Hotel and Offices at Montreal

The Canadian government has approved a recommendation that a modern office building and hotel be erected by the Canadian National on the site of the Central station at Montreal, Que., the work to proceed when conditions in the construction industry permit. This was announced by Lionel Chevrier, minister of transport, who stated that this proposal of the Directors of the railway for the utilization of the land acquired for its Montreal passenger terminal had been fully considered and authority had been given by the government to begin the detailed planning of the project as representing the maximum economic and public benefit to be obtained from the site, acquired 20 years ago.

The minister of reconstruction, C. D. Howe, in endorsing the project, said it had been decided that the first construction would be on one wing of the new office building facing on Dorchester street west, in which wing would be housed the International Civil Aviation Organization and the International Air Transport Association, whose headquarters are in Canada, but who are awaiting the provision of a suitable headquarters building for their worldwide activities.

Provision would also be made for the renting to airlines serving Canada of ticket offices, terminal and other facilities, the whole making a complete central aviation installation.

C. & E. I. Polls Its Customers for Passenger Schedule

As the result of a poll of its customers, the Chicago & Eastern Illinois' new streamliner, the "Whippoorwill," to be operated between Chicago and Evansville, Ind., will depart the latter city in the morning and return from Chicago in the afternoon. This schedule is the one most desired by the train's prospective passengers, who answered postcards sent out by the road outlining two plans of departure. The "Whippoorwill," scheduled to go into service early next month, will make a round-trip daily.

It is to be an all-coach, Diesel-powered streamliner, similar to the "Meadowlark," which was placed in service early this month between Chicago and southern Illinois.

For Small Quantities of Large Rivets
Tight clinching Pull-through Hollow type Cherry Blind Rivet
High Strength Self-plugging type Cherry Blind Rivet

The New CHERRY G-55 HAND GUN

"A CHERRY BLIND RIVET for every job . . . A Cherry Rivet Gun for every need." The Cherry line of blind rivets and installation tools was conceived around this idea. And the idea continues to expand.

THE NEW G-55 HAND GUN was designed especially for small-quantity users of the larger sizes (7/32", ¼", 9/32") of Cherry Blind Rivets. (Used with an adapter, it also installs the smaller rivets.) The more expensive pneumatic guns are primarily production line tools. But for small-quantity rivet installation, or for field work where air pressure is not available, the hand gun is perfect. The relatively inexpensive G-55 Hand Gun is light weight and easy to handle.

CHERRY BLIND RIVETS are available in aluminum, steel, brass and Monel.

For more information regarding Cherry G-55 Hand Gun, and other Cherry Rivet products, write to Dept. J-342, Cherry Rivet Company, 231 Winston Street, Los Angeles 13, Calif.

CHERRY RIVETS, THEIR MANUFACTURE & APPLICATION ARE COVERED BY U. S. PATENTS ISSUED & PENDING

Cherry Rivet *Company*
LOS ANGELES 13, CALIFORNIA

CLEAR THE RAILS *fast*

WITH ALLIS-CHALMERS OFF-TRACK WORK EQUIPMENT

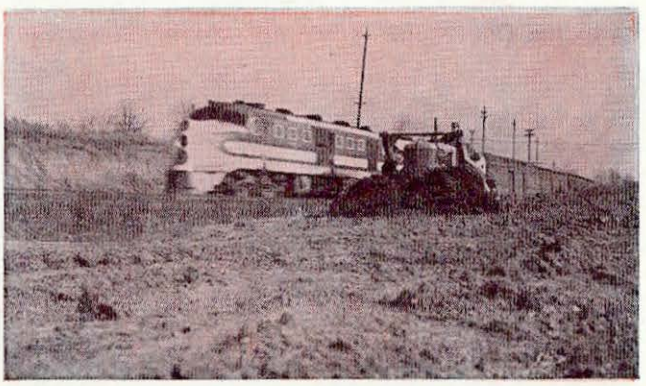
You can return tracks to normal service quickly after a wreck, washout, washin or other traffic interruption . . . by putting flexible, fast-working Allis-Chalmers Diesel Tractors on the job. Easily moved by flat car, trailer or under their own power, they go into action immediately... work at many advantageous points all along tie-up . . . have tracks back in service in a fraction of time required by rail-bound equipment. If necessary, they build a shoofly around paralyzed traffic in record time.

Clearing tracks or maintaining roadbeds, Allis-Chalmers Diesel Tractors work much more economically, more safely than on-track equipment . . . and eliminate costly interference with rail traffic. Investigate this modern, proved, off-track work power.

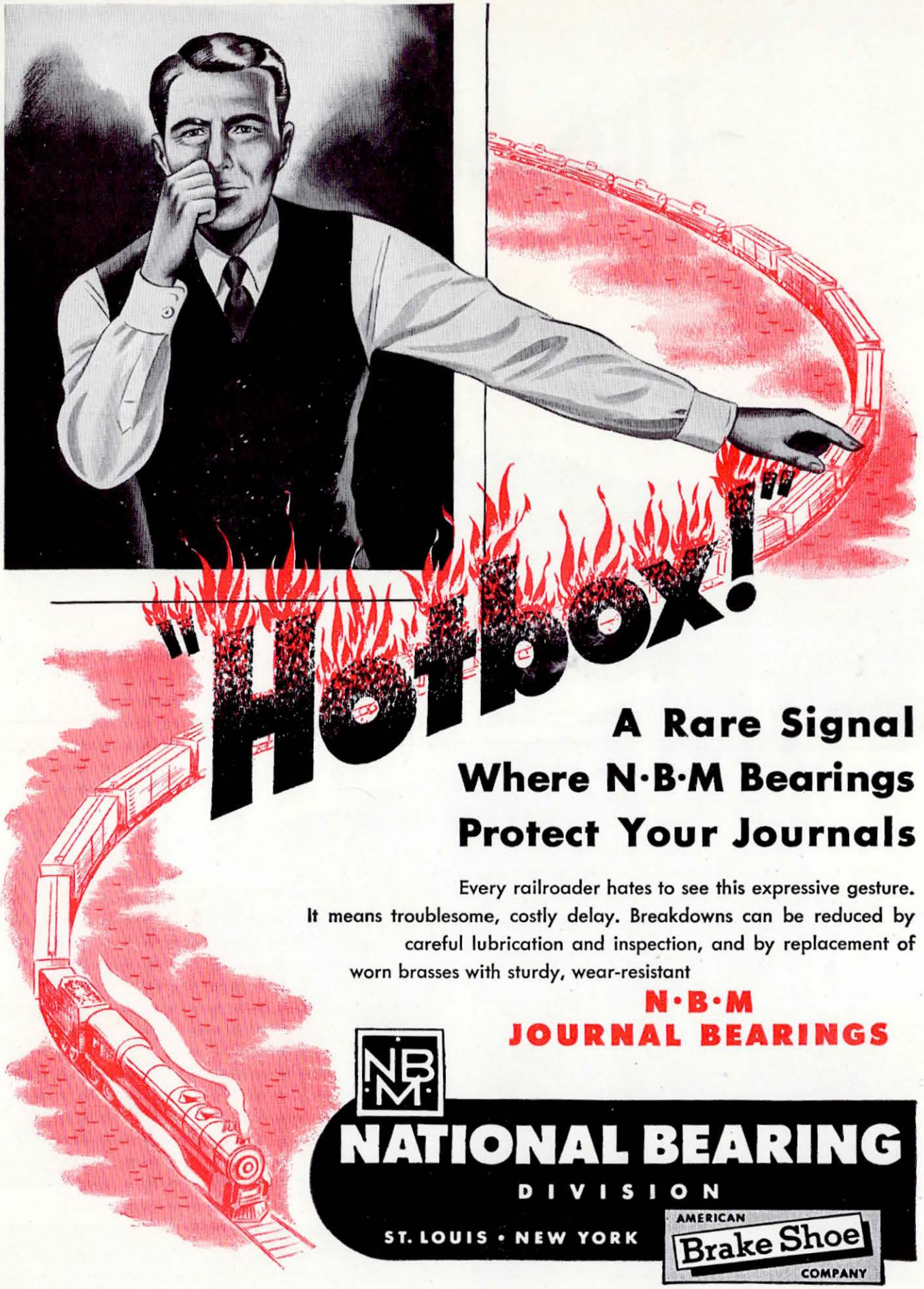
ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

2-CYCLE DIESEL TRACTORS • 4 MODELS: 60 TO 132 DRAWBAR HP.
WHEEL TRACTORS, MOTOR GRADERS, POWER UNITS, ROAD MACHINERY

VERSATILE . . . can be used alone or with scrapers, bulldozers, rollers, rippers, loaders, graders, snow plows, winches, tractor cranes.



ON SCHEDULE... Rail traffic and roadbed maintenance both proceed without interruption when Allis-Chalmers off-track work equipment is used.



A Rare Signal Where N·B·M Bearings Protect Your Journals

Every railroader hates to see this expressive gesture. It means troublesome, costly delay. Breakdowns can be reduced by careful lubrication and inspection, and by replacement of worn brasses with sturdy, wear-resistant

N·B·M JOURNAL BEARINGS

N·B·M

NATIONAL BEARING DIVISION

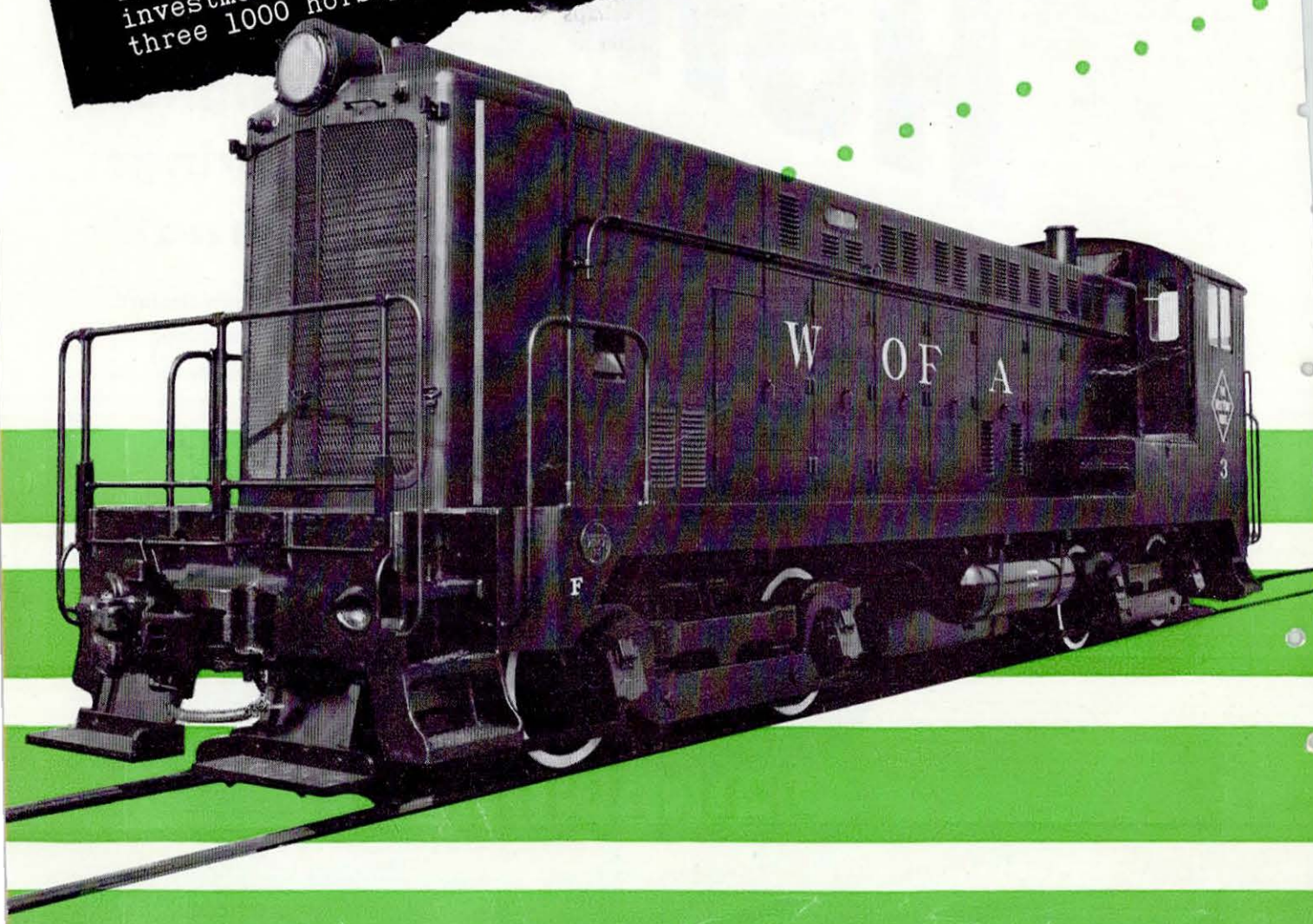
ST. LOUIS • NEW YORK

AMERICAN Brake Shoe COMPANY

PLANTS IN: ST. LOUIS, MO. • PITTSBURGH, PA. • MEADVILLE, PA. • JERSEY CITY, N. J. • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

This Locomotive is

The substitution of Diesel for steam switching motive power will result in a net annual saving of approximately $71,625 after fixed charges, which represents a 37 per cent return on the net investment. This fully justifies the substitution and the purchase of three 1000 horsepower Baldwin-Westinghouse units is recommended.



delivering a 37% return on investment

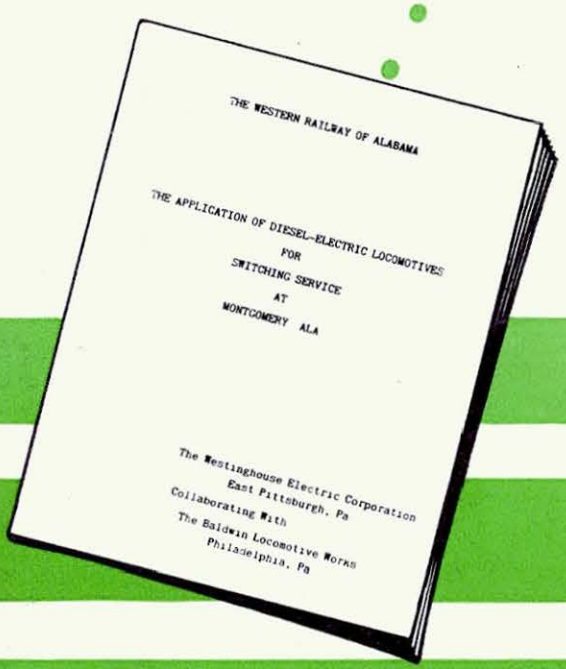
What Baldwin-Westinghouse Diesel-Electric Switchers might do for *you* is pretty well illustrated by this installation, for practically every variety of switching problem was wrapped up in one package.

The Western Railway of Alabama operates the switching facilities for itself and the Central of Georgia Railway. Two yards are utilized—most of the activities centering in one. Flat yard switching, gravity yard classification, pusher service, freight deliveries, passenger train switching and widely scattered industrial work are all part of the average day's duties. Much of the switching involves long moves . . . 5 mile hauls to an army depot, 3 mile transfer from the end of a main line. Heavy deliveries are made to three other Railroads. Industrial switching includes service to plants in a 3½ to 4 mile area.

Nine steam locomotives had been required to handle the eleven week-day and eight Sunday assignments. After a survey, three 1000 HP Baldwin-Westinghouse units were substituted for five of the steam switchers. An annual saving of $71,625 was estimated . . . and actual savings approximated this figure so closely that the railroad officials were amazed.

The Central of Georgia Railway has now added one Baldwin-Westinghouse 1000 HP unit, thereby replacing all steam power and completely dieselizing the operations.

Perhaps some of your switching operations offer an equal opportunity to make some substantial savings. It doesn't cost anything to find out. Just write and ask for a representative to make a study of your problem.



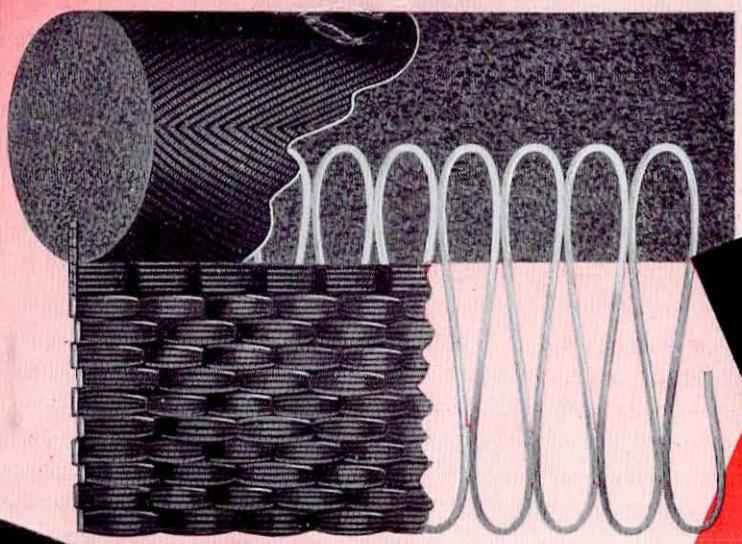
THE **BALDWIN-**

LOCOMOTIVE WORKS, PHILA.

Westinghouse

ELECTRIC CORPORATION, EAST PITTSBURGH, PA.

Innerseal IN STANDARDIZED SIZES



SPRING WIRE CONSTRUCTION HOLDS TUBING FIRMLY IN PLACE

We couldn't improve its time tested construction but we have made it easier to order and install by producing STANDARDIZED SIZES. No other waterproof weather stripping has *Innerseal's* features—The woven rustless spring wire is moulded right into the live sponge rubber to insure tight fitting installations and easy conformation to intricate shapes. Only *Innerseal* has this unusual combination—The strength of rustless spring steel with the soft sealing action of sponge rubber. Once you've seen it and used it you'll never be satisfied with ordinary weather stripping. *Innerseal* comes in a variety of colors and sizes—standardized and special. Write for samples and additional information. No obligation, of course.

Inner seal
WEATHER STRIPPING

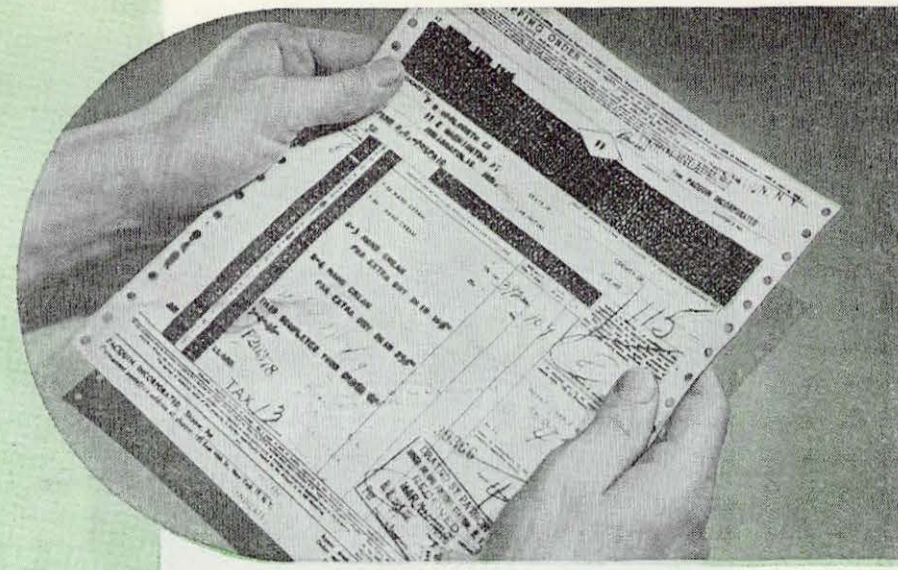
BRIDGEPORT FABRICS, INC.

Established 1837

BRIDGEPORT 1 CONNECTICUT

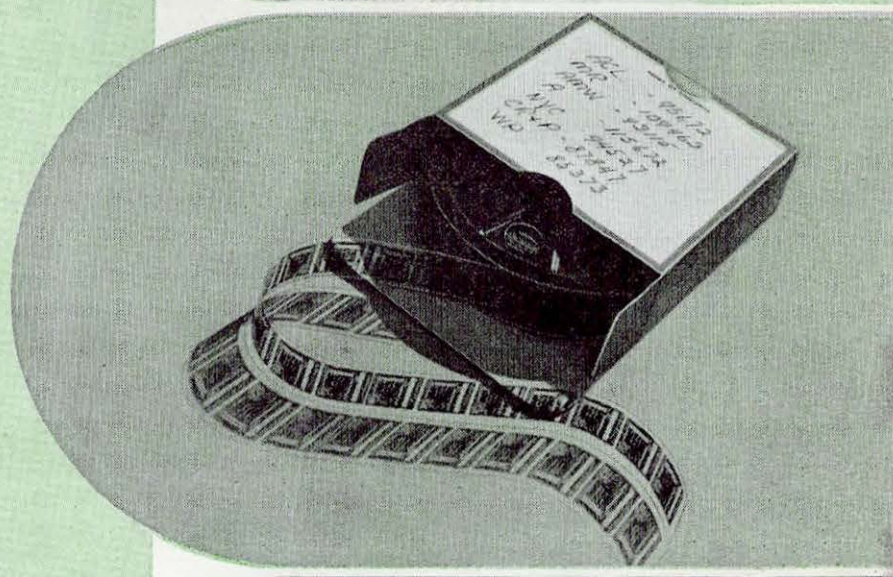
Recordak does your LCL waybilling faster...

because you can microfilm the shipping order in a fraction of a second . . . and use this original shipping order as the waybill.



more accurately...

because, when the original shipping order is used as the waybill, you avoid transcription errors . . . because in the film you have a photographically complete and accurate station record.



more economically...

because it costs only a fraction of a cent to microfilm a shipping order . . . because in saving time and avoiding errors you cut down accounting costs.

In addition, Recordak can reduce your filing-space requirements by 98% . . . can give you new protection against misfiling, tampering, theft. You can find out how Recordak does all these things and more for railroads and other business organizations . . . by reading our new book, "50 Billion Records Can't Be Wrong." Write for a free copy. Recordak Corporation, Subsidiary of Eastman Kodak Company, 350 Madison Avenue, New York 17, N. Y.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming— and its application to railroading

FREE—just mail this coupon

Recordak Corporation,
350 Madison Avenue, New York 17, N. Y.
Please send your new book on Recordak "50 Billion Records Can't Be Wrong."

Name_____

Line_____

Street_____

City_____ State_____

Index to Advertisers

October 19, 1946

A

Allis-Chalmers 54
American Arch Co., Inc. 47
American Locomotive Company ..... 11 to 14 incl.
American Optical Company 26
American Steel Foundries 19
American Steel & Wire Company 4, 5
American Throttle Company, Incorporated 48
American Welding and Manufacturing Co., The, Railway Equipment Division 10
Anemostat Corporation of America 32
Auto Engine Works (Inc.) 62

B

Baldwin Locomotive Works, The 56, 57
Bendix Aviation Corporation, Radio Division 29
Bethlehem Steel Company 34
Bowser, Inc. 52
Bridgeport Fabrics, Inc. 58

C

Carnegie-Illinois Steel Corporation 4, 5
Cherry Rivet Company 53
Classified Advertisements 64
Columbia Steel Company 4, 5
Cummins Engine Company, Inc. 20

D

Differential Steel Car Company 65
Durable Manufacturing Company 24

E

Edwards Company, Inc., The O. M. 17
Electro-Motive Division, General Motors Corporation 50, 51
Electric Tamper & Equipment Co. 16

F

Flintkote Company, The 22
Franklin Railway Supply Company, Inc. 46
Fuller Brush Company, The 28

G

General American Transportation Corporation 35
General Electric Company ..... 11 to 14 incl.
General Railway Signal Company ..... Back Cover
General Steel Castings 33
Get Together Department 64
Glidden Company, The 61
Globe Steel Tubes Company 63
Goodall Fabrics, Inc., Subsidiary of Goodall-Sanford, Inc. 21
Griffin Wheel Company 27

H

Harbison-Walker Refractories Co. 47
Howard, Inc., William J. 64
Hunt-Spiller Mfg. Corporation 49

I

Iron and Steel Products, Inc. 64

J

Justrite Manufacturing Company 39

L

Lamson & Sessions Company, The 25
Lima Locomotive Works, Incorporated 45

M

McInerney Spring & Wire Company 31
Milwaukee Power Equipment Co. 64
Miner, Inc., W. H. 3
Minneapolis-Honeywell Regulator Co. 37

N

National Bearing Division of American Brake Shoe Company 55
National Malleable and Steel Casting Co. 6, 7
National Pneumatic Company 15
National Tube Company 4, 5
New York Air Brake Company, The 18

O

Ohio Locomotive Crane Co. 65
Okonite Company, The 44
Oxweld Railroad Service Company, The 23

P

Porter Company, Inc., H. K. 2
Purdy Company, The 65

R

Railway Educational Bureau, The 64
Recordak Corporation, Subsidiary of Eastman Kodak Company 59
Republic Steel Corporation 8, 9 62
Ryerson & Son, Inc., Joseph T. 66

S

Safety Car Heating and Lighting Company, Inc., The 38
Schaefer Equipment Company 67
Scullin Steel Co. 30
Simmons-Boardman Publishing Company 65
Standard Car Truck Company 36

T

Tennessee Coal, Iron & Railroad Company 4, 5
Timken Roller Bearing Company, The ..... Front Cover

U

Union Switch & Signal Company 42
United States Steel Export Company 4, 5
United States Steel Supply Company 4, 5

V

Viking Pump Company 62

W

Westinghouse Air Brake Co. 40
Westinghouse Electric Corporation 56, 57
Willson Products, Incorporated 60

STEEL *in stock at* **RYERSON**

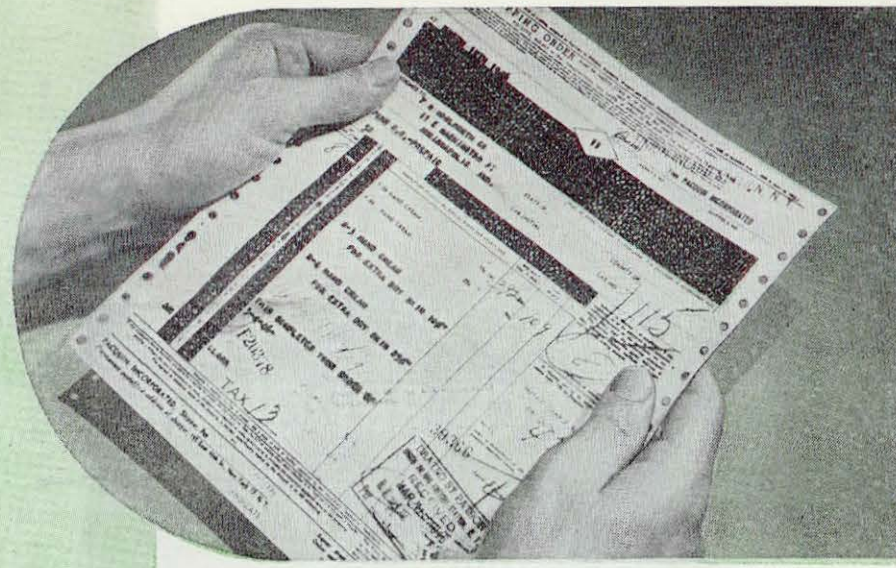
• Ryerson has the steel you need ready for immediate shipment. Eleven convenient Ryerson plants stock more than ten thousand kinds, shapes and sizes of steel and allied products. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City, Pittsburgh.

Principal Products Include:

Structurals	Strip	Stainless	Babbitt, Solder
Stay Bolt Iron	Alloys	Mechanical Tubing	Reinforcing
Plates	Cold Finished Steel	Boiler Tubes	Nails, Rivets, etc.
Sheets	Tool Steel	Welding Rod	Machinery

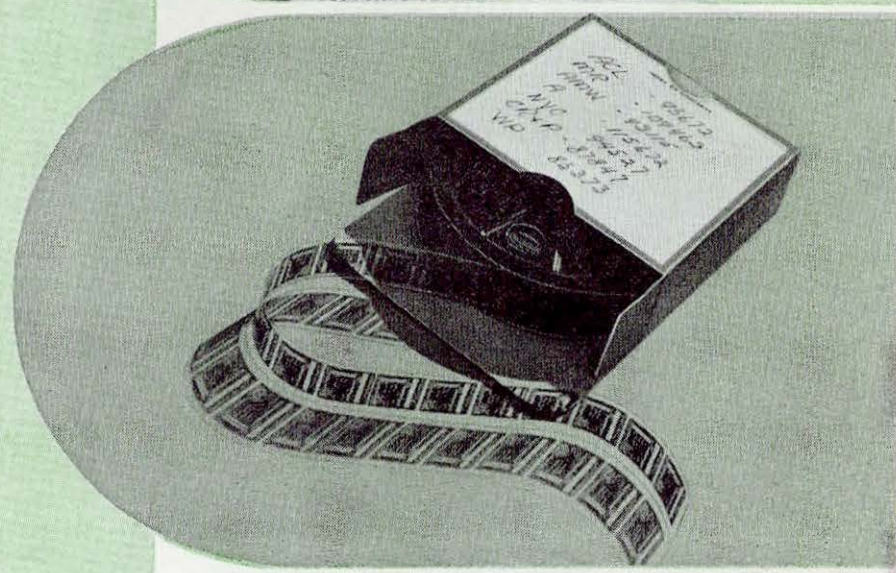
Recordak does your LCL waybilling faster...

because you can microfilm the shipping order in a fraction of a second . . . and use this original shipping order as the waybill.



more accurately...

because, when the original shipping order is used as the waybill, you avoid transcription errors . . . because in the film you have a photographically complete and accurate station record.



more economically...

because it costs only a fraction of a cent to microfilm a shipping order . . . because in saving time and avoiding errors you cut down accounting costs.

In addition, Recordak can reduce your filing-space requirements by 98% . . . can give you new protection against misfiling, tampering, theft. You can find out how Recordak does all these things and more for railroads and other business organizations . . . by reading our new book, "50 Billion Records Can't Be Wrong." Write for a free copy. Recordak Corporation, Subsidiary of Eastman Kodak Company, 350 Madison Avenue, New York 17, N. Y.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—and its application to railroading

FREE—just mail this coupon

Recordak Corporation,
350 Madison Avenue, New York 17, N. Y.
Please send your new book on Recordak
"50 Billion Records Can't Be Wrong."

Name_____

Line_____

Street_____

City_____ State_____

HERE ARE SOME OF THE WAYS THE

WILLSON RAILROAD SAFETY SERVICE PROGRAM

HELPS REDUCE EYE ACCIDENTS AND CUT COSTS

Typical Safety Standards Circular shows proper safety equipment for specific operations.

1. Gives *workers latest and most comfortable type of protective equipment.* Within the limits of maximum protection and worker safety, Willson safety devices have been steadily improved by reducing weight, improving face fit etc. to provide more comfortable wearing qualities.

2. Reduces *workers' resistance to wearing safety equipment.* This safety program provides for submission of safety equipment to local shop committees and their approval means advance acceptance by workers.

3. Assists *enforcement of safety regulations.* Enforcement depends largely on full worker cooperation. This is possible only through their acceptance of safety standards.

4. Helps *cut eye accidents and resulting compensation payments.* Worker acceptance means increased use of safety equipment. The number of eye accidents—and their cost—decreases in direct proportion to such increased use.

5. Increases *productive time.* Fewer accidents means less time out—more productive time.

6. Promotes *better employee relations.* The employees' part in making decisions on safety standards . . . their approval amounting to advance acceptance . . . the resulting reduction in accidents because of increased use of safety equipment—all tend to improve employee relations.

7. Provides *services of trained Willson safety representative.* His assistance in inaugurating a safety program will be followed by periodic inspection trips to supervise fitting, ordering, etc.

8. Standards *circulars supplied by Willson.* Posted in strategic locations, these circulars are constant reminders of the need for eye and respiratory safety equipment—facilitates ordering.

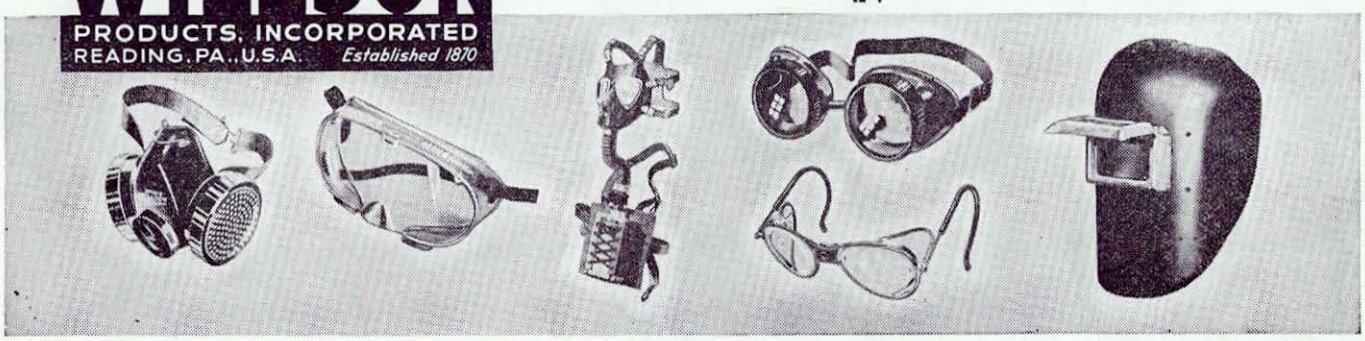
9. Controls *inventory.* Majority of railroad eye hazards is covered by limited line of Willson safety equipment, setting up standard stocks of items at all points where safety equipment is stocked and issued.

Let us make a survey of your particular safety needs—at no obligation on your part. For detailed information on the Willson Safety Service Program write to the Railroad Sales Dept., Willson Products, Inc., 241 Washington St., Reading, Pa.

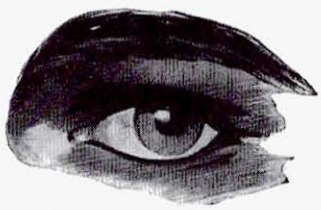
GOGGLES • RESPIRATORS • GAS MASKS • HELMETS

DOUBLE WILLSON

PRODUCTS, INCORPORATED
READING, PA., U.S.A. *Established 1870*



NEW APPEAL



FOR YOUR RAILROAD

through...

COLOR STRATEGY

planned by...

THE SYMBOL OF COLOR AUTHORITY

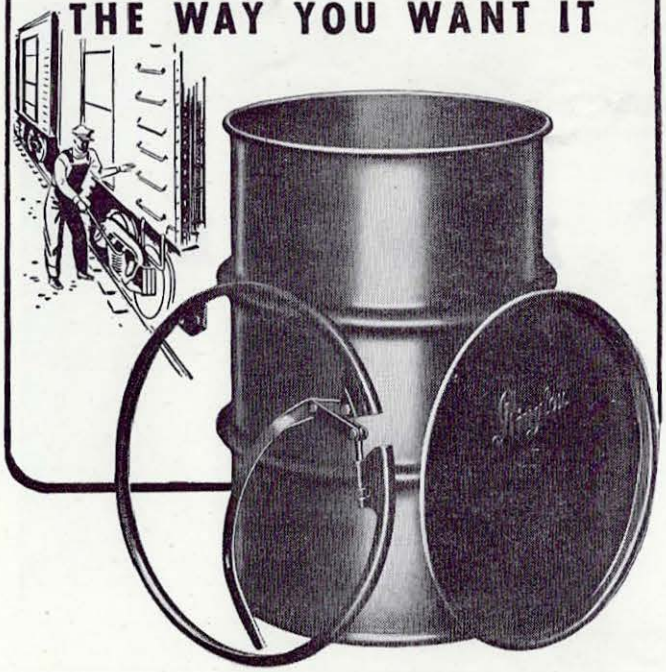
Glidden

Pacemaker in Paints

For color prescriptions or technical service on any railroad painting problem, write
THE GLIDDEN COMPANY • Cleveland 2, Ohio

Keep Journal Packing

THE WAY YOU WANT IT



with the Republic STEVENS

RINGLOX Vacuum-Tight DOPE DRUM

Because this dope drum is vacuum sealed, it assures high uniformity of lubricating qualities throughout the entire contents of the drum. And it keeps dust, dirt, water and other foreign particles out while in storage or shipment.

The patented Ringlox closure means a tight drum throughout many years of use, too—because a take-up bolt compensates for wear and shrinkage. Write for details.

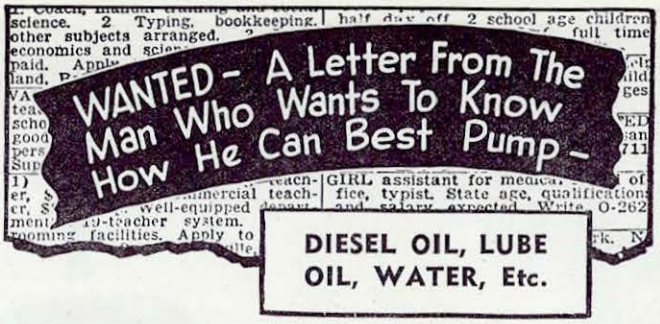
★ ★ ★

No tools are needed with the STEVENS Ringlox Dope Drum. Just push the handle to open it—or pull the handle to close it.

NILES STEEL PRODUCTS DIVISION
REPUBLIC STEEL CORPORATION
NILES, OHIO

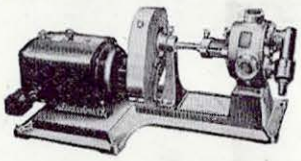
Republic STEVENS

METAL BARRELS AND DRUMS



Do you have such a pumping problem?
Do you want to deliver it smoothly without pulsation . . . move it fast with low power consumption . . . do you want to lift the liquid up to 20 feet or up to its vaporization point as the case may be . . . do you want to move it any distance either vertical or horizontal . . . do you have limited space for the pumping unit . . . do you want a pump built for your job in the size and style needed?

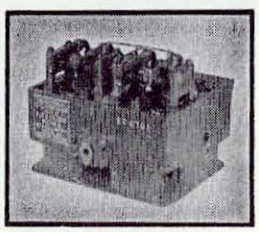
If any of the above is your problem, ask VIKING today for free folder 46SY, and get the complete story about this original rotary "gear-within - a - gear" pump. It is especially adapted for solving such pumping problems.



See Our Catalog In SWEETS

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

"MOONEY" QUAD-VALVE CYLINDER HEADS



FOR RAIL CAR ENGINES

Designed to fit—

Models 120, 146 and 148 Winton Engines

Models 660 and 860 Brill Engines

"MOONEY" QUAD-VALVE CYLINDER HEADS—

complete with Valve-Motion—insure

- Increased Power
- Better Fuel Economy
- More Mileage per Overhaul
- Decreased Maintenance Cost
- Better Thermal Efficiency
- Forced Water Circulation directly against and around valve seats

Manufactured by

AUTO ENGINE WORKS (INC.)
349 North Hamline Ave. Saint Paul, Minnesota

what's your need in SIZE?

Globe seamless steel tubing is made hot finished and cold drawn in alloy and carbon steels in sizes from ½ inch to 6⅝ inches outside diameter.

Globe seamless stainless steel tubing is available in tube sizes from ½ inch to 6⅝ inches outside diameter and in pipe sizes ⅛ inch to 6 inches, standard, extra strong and double extra strong weights.

Gloweld (electric welded) stainless steel tubing may be had in sizes ranging from ⅜ inch to 4 inches outside diameter inclusive, and in standard weight pipe sizes ⅛ inch to 2 inches, inclusive.

Your tubing needs may lie somewhere within the above ranges — whatever your requirements, Globe is qualified by experience and facilities to supply you with tubing of the quality and uniformity you demand.

GLOBE STEEL TUBES COMPANY, Milwaukee 4, Wisconsin

GLOBE TUBES

★ STAINLESS STEEL TUBES ★ PRESSURE TUBES ★ GLOBEIRON TUBING ★ GLOWELD TUBES
★ CONDENSER AND HEAT EXCHANGER TUBES ★ MECHANICAL TUBING

5025

GET TOGETHER DEPARTMENT

Educational Services for RAILROAD MEN

Our New Service on Diesel Locomotive Operation is highly recommended for Engineers and Firemen

The Railway Educational Bureau

Omaha 2, Nebraska

WANTED

50 or any part 20 or 30 Cu. Yd. Capacity Automatic Air Dump Cars, lift or drop doors, standard gauge, in any state of repair. U. S. Appliances. Address Box 835, Railway Age, 30 Church St., New York 7, N. Y.

POSITION OPEN

Mechanical draftsman familiar with design of locomotives (Steam or Diesel), also passenger and freight train car equipment. Address Box 840, Railway Age, 30 Church St., New York 7, N. Y.

STEAM LOCOMOTIVE CRANES
For Sale or Rent

50—55 foot booms — 8 wheels — coal burning. Available immediately.
20 ton McMyler Interstate #1997.
20 ton Brownhoist #6898.
20 ton Industrial Bay City #3644.
25 ton Browning #2065.
40 ton Industrial Bay City #2893.

Rebuilt in our own shops to first class condition.

Now rebuilding one 40 ton Ohio Steam Locomotive Crane #3801, oil burning, heavy logging boom, eight wheel drive switching type. We will buy crane booms—50 to 70 foot, 20 to 50 tons capacity.

William J. Howard, Inc.
35 E. Wacker Drive
Chicago 1, Illinois

LOCOMOTIVES

2—44-Ton, Diesel-Electric, 300 H.P. Tractive Effort 26,100 lbs. Standard Gauge.
1—38-Ton, 0-4-0 Coal Fired Steam, 36-Inch Gauge.
2—85-Ton Electric Industrial 600 v. D.C., General Electric B + B — 150/150.
4—140 Ton 2-8-2 steam locomotives, T/E 48,570 lbs. I.C.C. condition. Oil fired.
1—8-Ton, Type 0-4-0, Vulcan Gasoline Locomotive.
1—65-Ton, 0-6-0, Coal-Fired Steam Switcher, New 1923, Good Condition.
1—80-Ton, 0-6-0, Coal-Fired Steam Switcher, New 1942, Good Condition.
Other Locomotives Too!
1—15-Ton Whitcomb Gasoline, Standard Gauge.

Send us your Inquiry

IRON & STEEL PRODUCTS, Inc.
41 years' experience
13486 S. BRAINARD AVE.
CHICAGO 33, ILLINOIS
"ANYTHING containing IRON or STEEL"

FREIGHT CARS

3—Gondola, All Steel, 57½-Ton.
70—Gondola, All Steel, 50-Ton.
100—Hopper, Twin, All Steel, 50-Ton.
61—Hopper, Side Discharge, All Steel, 70-Ton.
7—Box, 50-Ton, 50-Ft., Automobile, All Steel.
24—Box, 40-Ton, 50-Ft., Single Sheathed.
40—Box, 40-Ton, 50-Ft., Single Sheathed.
3—Caboose, 8-Wheel, Steel Underframe.
39—Tank, 8,000 Gal. Capacity, Coiled and Non-Coiled, Class II and III.
54—Flat Cars, 50-Ton, 43-Ft.
4—Flat Cars, 50-Ton, 40-Ft.
6—Dump, 20 Cu. Yd., Automatic Air, K & J.
2—Dump, 30 Cu. Yd., Clark Automatic Air

IRON & STEEL PRODUCTS, Inc.
13486 S. BRAINARD AVE.
CHICAGO 33, ILLINOIS
"ANYTHING containing IRON or STEEL"

SPECIAL OFFERING

Immediate Delivery

39—50-Ton, 40-Ft., All-Steel Gondola Cars. Built 1919-1921, some equipped with Type "A B" Air Brakes.

100—50-Ton, All-Steel Twin Hopper Cars. These cars just released from revenue service.

IRON & STEEL PRODUCTS, Inc.
41 YEARS EXPERIENCE
13486 S. BRAINARD AVE.
CHICAGO 33, ILLINOIS
"ANYTHING containing IRON or STEEL"

LIFT AND FORK TRUCKS

Government surplus Lift Fork Trucks
Automatic—6000# Fork Truck with battery
Crescent Platform Truck—3000# Cap. with battery.
Yale Platform Truck—6000# Cap.—Ready Power
Ross—10000 Cap.# Pneu. tired Fork Truck—Like New.
New Ross—6000# Cap. Pneu. tired Fork Trucks

All in very good condition — Prompt shipment — Priced right.

MILWAUKEE POWER EQUIPMENT CO.
525 North 22nd Street
Milwaukee 3, Wisconsin

AXLE LATHES

2 Bridgeford Double Carriage Without Taper Attachments
2 Center Drive
Address Box 837, Railway Age, 30 Church St., New York 7, N. Y.

CAR WHEEL BORERS

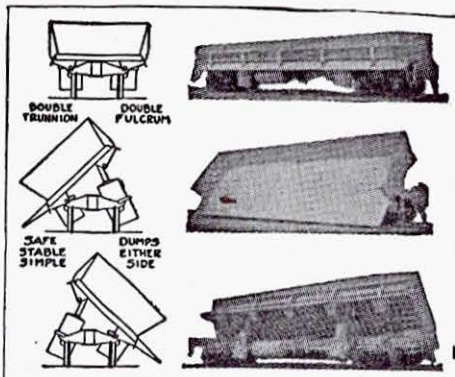
3 52" Betz
1 48" Niles
Address Box 839, Railway Age, 30 Church St., New York 7, N. Y.

35 TON G. E. LOCOMOTIVE

Standard Gauge, 230 Volts Trolley Wire.
Address Box 838, Railway Age, 30 Church St., New York 7, N. Y.

TAKE ADVANTAGE OF SPACE IN THE GET-TOGETHER DEPARTMENT

KEEP BUYING BONDS



AIR DUMP CARS

RAIL CARS
MINE CARS
AND
LOCOMOTIVES
AXLESS TRAINS
COMPLETE
HAULAGE SYSTEMS

DIFFERENTIAL STEEL CAR CO.
FINDLAY, OHIO

RAILROAD EQUIPMENT
CARS — LOCOMOTIVES
REPAIR PARTS

RELAYING RAILS

STEEL STORAGE TANKS
6000 — 8000 — 10000 gal. cap.
CLEANED AND TESTED

THE PURDY COMPANY
122 S. Michigan Avenue Chicago 3, Illinois

KEEP

BUYING

VICTORY

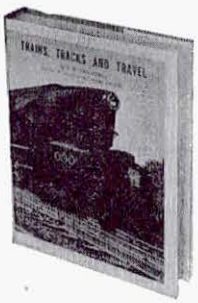
BONDS

New Sixth Edition

TRAINS, TRACKS AND TRAVEL

By T. W. Van Metre

Professor of Transportation, Columbia University



THE new Sixth Edition of this ever popular book for boys and their fathers who find railroading a fascinating subject, has been thoroughly revised and enlarged. A timely new chapter describes How Our Railroads Went to War. Many new illustrations include the freight car insignia of all Class 1 railroads and show modern methods of building a railroad.

Chapters

Clearing the Way; Our Steam Railroads; The Railroad Track; The Steam Locomotive; Electric Locomotives, Gasoline and Oil Motors; Freight Cars; Passenger Train Cars; Streamliners on Parade; Passenger Stations and Terminals; Freight Terminals; The Operation of Trains; How Our Railroads Went to War.

1944. 6th. 417 pages, 323 illus., 6 x 9, cloth, $3.50.

Simmons-Boardman Publishing Corporation
30 Church Street New York 7, N. Y.

THE STEAM LOCOMOTIVE

By Ralph P. Johnson, M. E.

Chief Engineer
The Baldwin Locomotive Works

An authoritative explanation of the theory, operation and economics of the modern steam locomotive, with comparisons to the Diesel-electric locomotive. The subject matter is stripped down to fundamentals, with only enough background to indicate paths of development. Tabular matter is based upon latest data.

"It should be a useful reference for engineers, railway officers whose responsibility includes general supervision of motive-power selection and performance, supervisors interested in locomotive operations, and students of motive-power performance." — *Railway Age.*

1944. 2nd. 564 pages, illus., 75 tables, index, 6 x 9, $5.00

•

SIMMONS-BOARDMAN PUBLISHING CORP.
30 Church St., New York 7, N. Y.

Index to Advertisers

October 19, 1946

A

Allis-Chalmers 54
American Arch Co., Inc. 47
American Locomotive Company ..... 11 to 14 incl.
American Optical Company 26
American Steel Foundries 19
American Steel & Wire Company 4, 5
American Throttle Company, Incorporated 48
American Welding and Manufacturing Co., The, Railway Equipment Division 10
Anemostat Corporation of America 32
Auto Engine Works (Inc.) 62

B

Baldwin Locomotive Works, The 56, 57
Bendix Aviation Corporation, Radio Division 29
Bethlehem Steel Company 34
Bowser, Inc. 52
Bridgeport Fabrics, Inc. 58

C

Carnegie-Illinois Steel Corporation 4, 5
Cherry Rivet Company 53
Classified Advertisements 64
Columbia Steel Company 4, 5
Cummins Engine Company, Inc. 20

D

Differential Steel Car Company 65
Durable Manufacturing Company 24

E

Edwards Company, Inc., The O. M. 17
Electro-Motive Division, General Motors Corporation 50, 51
Electric Tamper & Equipment Co. 16

F

Flintkote Company, The 22
Franklin Railway Supply Company, Inc. 46
Fuller Brush Company, The 28

G

General American Transportation Corporation 35
General Electric Company ..... 11 to 14 incl.
General Railway Signal Company ..... Back Cover
General Steel Castings 33
Get Together Department 64
Glidden Company, The 61
Globe Steel Tubes Company 63
Goodall Fabrics, Inc., Subsidiary of Goodall-Sanford, Inc. 21
Griffin Wheel Company 27

H

Harbison-Walker Refractories Co. 47
Howard, Inc., William J. 64
Hunt-Spiller Mfg. Corporation 49

I

Iron and Steel Products, Inc. 64

J

Justrite Manufacturing Company 39

L

Lamson & Sessions Company, The 25
Lima Locomotive Works, Incorporated 45

M

McInerney Spring & Wire Company 31
Milwaukee Power Equipment Co. 64
Miner, Inc., W. H. 3
Minneapolis-Honeywell Regulator Co. 37

N

National Bearing Division of American Brake Shoe Company 55
National Malleable and Steel Casting Co. 6, 7
National Pneumatic Company 15
National Tube Company 4, 5
New York Air Brake Company, The 18

O

Ohio Locomotive Crane Co. 65
Okonite Company, The 44
Oxweld Railroad Service Company, The 23

P

Porter Company, Inc., H. K. 2
Purdy Company, The 65

R

Railway Educational Bureau, The 64
Recordak Corporation, Subsidiary of Eastman Kodak Company 59
Republic Steel Corporation 8, 9 62
Ryerson & Son, Inc., Joseph T. 66

S

Safety Car Heating and Lighting Company, Inc., The 38
Schaefer Equipment Company 67
Scullin Steel Co. 30
Simmons-Boardman Publishing Company 65
Standard Car Truck Company 36

T

Tennessee Coal, Iron & Railroad Company 4, 5
Timken Roller Bearing Company, The ..... Front Cover

U

Union Switch & Signal Company 42
United States Steel Export Company 4, 5
United States Steel Supply Company 4, 5

V

Viking Pump Company 62

W

Westinghouse Air Brake Co. 40
Westinghouse Electric Corporation 56, 57
Willson Products, Incorporated 60

STEEL *in stock at* **RYERSON**

• Ryerson has the steel you need ready for immediate shipment. Eleven convenient Ryerson plants stock more than ten thousand kinds, shapes and sizes of steel and allied products. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City, Pittsburgh.

Principal Products Include:

Structurals	Strip	Stainless	Babbitt, Solder
Stay Bolt Iron	Alloys	Mechanical Tubing	Reinforcing
Plates	Cold Finished Steel	Boiler Tubes	Nails, Rivets, etc.
Sheets	Tool Steel	Welding Rod	Machinery

SCHAEFER

"no finer connection for use with Brake Beam Leveling Links"

Developed for use with National Malleable & Steel Casting Company's brake beam leveling links, either under or through the bolster, they are longer and stiffer with overbuilt jaw structure. The link holes are accurately spaced and reamed. Specify Schaefer.

Schaefer

SCHAEFER EQUIPMENT COMPANY • • • KOPPERS BLDG. PITTSBURGH, PA.

Reduce Yarding Time...

WITH G-R-S CAR RETARDERS

One way to keep more freight cars rolling and take the pressure off close freight schedules, is to speed up classification with G-R-S car retarders.

For instance, with G-R-S car retarders as its partner, one switcher in the East St. Louis yard of the Illinois Central averaged 72 cars per hump hour. In this same yard, during one peak period, 1810 cars were classified in a 10½-hour period. In addition to the increased car availability, costs of handling dropped 31.3 per cent.

G-R-S engineers will be glad to study your classification yard operations to determine just what savings you can expect. Simply phone or write our nearest office.

General Railway Signal Company

ROCHESTER 2, N. Y. • NEW YORK 17 • CHICAGO 3 • ST. LOUIS 1

A-2168